TRC

REMEDIAL DESIGN INVESTIGATIVE ACTIVITIES SUMMARY REPORT

Prepared for

United States Environmental Protection Agency

Prepared by

TRC

Irvine, California

Representing

Waste Disposal, Inc. Group (WDIG)

Project No. 94-256
April 1999

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WASTE DISPOSAL INC. SUPERFUND SITE

Project Coordinator

April 16, 1999 Project No. 94-256

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Transmittal
Remedial Design Investigative Activities Summary Report
Waste Disposal, Inc. Superfund Site

Dear Ms. Benner:

Enclosed is the Remedial Design (RD) Investigative Activities Summary Report for the Waste Disposal, Inc. (WDI) Superfund Site.

The RD Investigative Activities Summary Report provides a compilation of the field data collected subsequent to the 1995 Predesign Field Investigation at the WDI Superfund Site located in Santa Fe Springs, California. The Waste Disposal, Inc. Group (WDIG) is submitting this report in compliance with the Amended Statement of Work of the Amended Administrative Order, Docket No. 97-09. The specific purpose of this report is to summarize site data collected during field investigations completed during 1997 and 1998.

The submission of the RD Investigative Activities Summary Report is considered a pivotal point by WDIG and concludes the extensive field activities completed from April 1997 through December 1998. The one exception being TM No. 13 field activities which are ongoing at this time. WDIG looks forward to utilizing the findings of the RD Investigative Activities Summary Report and applying this information into the focused feasibility study.

Please call with any questions or comments you may have at (562) 692-4535.

Sincerely,

for I.W.

Ian Webster
WDIG Project Coordinator

IW/EA:rm
Enclosure

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REMEDIAL DESIGN (RD) INVESTIGATIVE ACTIVITIES SUMMARY REPORT

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1.0 INTRODUCTION

1. This Remedial Design Investigative Activities Summary Report (Report) provides a compilation of the field data collected subsequent to the 1995 Predesign Field Investigation at (TRC, 1996b) the Waste Disposal, Inc. (WDI) Superfund Site located in Santa Fe Springs, California. The Waste Disposal Inc., Group (WDIG) is submitting this Report in compliance with the Amended Statement of Work (SOW) of the Amended Administrative Order, Docket No. 97-09. The specific purpose of this Report is to summarize site data collected during field investigations completed during 1997 and 1998.

   The information provided in this report will allow completion of the Feasibility Study (FS).

2. The remainder of this report is organized in the following chapters:
   - Chapter 2.0 - Project Background
   - Chapter 3.0 - Supplemental Site Characterization
   - Chapter 4.0 - Site Hypothesis
   - Chapter 5.0 - Remaining Remedial Design Schedule
   - Chapter 6.0 - References

2.0 PROJECT BACKGROUND

2.1 GENERAL SITE HISTORY

1. The WDI Superfund site is located in the city of Santa Fe Springs, Los Angeles County, California on an approximate 40-acre parcel of land (see Figures 2.1 and 2.2). The site is bordered on the northwest by Santa Fe Springs Road, on the northeast by a Fedco distribution center, on the southwest by Los Nietos Road, and on the southeast by Greenleaf Avenue. Areas of the site along Los Nietos Road and Santa Fe Springs Road are occupied by light industrial complexes. The site property along Greenleaf Avenue, has one existing structure (Area 5), and a few remaining foundations from previous structures (Areas 6 and 7).

2. The WDI site contains a buried 42-million-gallon-capacity reservoir originally constructed above grade for crude petroleum storage. The reservoir was decommissioned for storage in the late 1920s or early 1930s and beginning in the 1950's was used for disposal of a range of wastes and solid fill materials. Aerial photographs from 1941, 1945, 1947, 1949 and 1951 show the reservoir as being empty or having a relatively small amount of liquids (rainwater or oily liquid/sludge). After 1949, activities were regulated under permit from Los Angeles County until completion of the disposal facility closure in 1964. Reliable documentation on disposal was not maintained; as a result, a comprehensive history of site disposal practices is not available. However, investigations have shown that disposed material included drilling muds, sludges and construction debris, both in the reservoir and in unlined disposal pits in Areas 1 through 8.

3. In 1953, WDI started receiving clean fill for covering the site, including the reservoir area and unlined disposal pits. Boring data indicates that between 5 to 15 feet of clean fill exists on all or most of the site. Since 1953, the site has been divided into multiple lots, and various businesses have developed on the site (ranging from machine shops to auto repair shops to small commercial businesses). A small, northwestern portion of the reservoir area is covered with an asphalt parking lot, used for recreational vehicle storage. The remainder of the reservoir area is undeveloped.

4. The site was placed on the National Priorities List (NPL) in July of 1987. In 1988, EPA undertook a removal action, erecting a fence around the southeast corner of the site to improve security and prevent accidental exposure to possible surface contamination. During

the years 1988 to 1993, EPA undertook a Remedial Investigation/Feasibility Study (RI/FS) (EPA, 1993c) process which led to the selected remedy presented in the Record of Decision (ROD) (EPA, 1993d).

5. The WDIG, initially comprised of the eight companies named in the original Administrative Order, Docket No. 94-17, undertook Predesign and Design activities during 1995 and 1996, and has submitted a Predesign/Intermediate (60%) Design Report (TRC, 1995) and a Pre-Final (90%) Design Report (TRC, 1996a).

6. The expanded WDIG, now comprised of 21 companies named in the Amended Administrative Order, Docket 97-09, has undertaken additional RD Investigative Activities, which are currently being completed, plus other activities requested by EPA (e.g., stormwater management, in-business air monitoring) in the Amended SOW.

7. EPA has undertaken the performance of the Gas Contingency Plan (EPA, 1997) plus oversight of various experimental investigative activities which are described below.

8. Additional investigations have also been performed by EPA since 1997 at the WDI site. These activities include the following:

   - Area 7 Geoprobe Investigation
   - Reservoir Physical and Chemical Characterization
   - Piezometer Study of the Reservoir Interior
   - High Vacuum Extraction Study
   - Ground Water Investigation

   A complete description of the objectives and findings of these investigations is provided in Section 2.3.

2.2 SUMMARY OF PRIOR INVESTIGATIONS

1. The RI completed by EPA in 1988 and 1989 was documented in the RI Report (EBASCO, 1989d) and the FS Report (EPA, 1993). This body of work concluded the following:

   - Of the more than 100 soil borings and hundreds of individual analyses, only a relatively small number of samples indicated concentrations of constituents of concern (COCs) greater than Record of Decision (ROD) cleanup standards.
   - The clean fill material overlying the sump-like material is not contaminated and does not present a risk.
   - The majority of the contamination is contained within the reservoir area. However, recent investigations show that the contamination extends into limited portions of Areas 1, 4, 5, 7 and 8.

- Some areas used for waste handling outside the reservoir area have elevated contaminant concentrations but appear to be contained by soils and are relatively immobile.
- Methane (CH_4) is the dominant subsurface gas, with the highest concentration found within the reservoir.
- Contamination does not appear to have migrated downward to the ground water, as demonstrated by ground water monitoring.

2. The 1995 Predesign Activities conducted by the WDIG were focused primarily on investigating soil conditions in Site Areas 4 and 7, as shown in Figure 2.3, and confirming earlier EPA soil gas and ground water findings.

3. The results of the predesign soil chemistry investigations in Areas 4 and 7 indicated that unacceptable risk conditions originally thought to occur at these locations do not actually exist (TRC, 1995). Review of Area 4 and Area 7 sampling and analysis data indicates that: (1) there are no exceedances in Area 4 of ROD Cleanup Standards (using industrial PRGs for Be and Tl); and (2) at a 95 percent confidence level there are no exceedances of ROD Cleanup Standards in Area 7.

4. Soil gas concentrations were found, at some vapor wells, to be more elevated than in EPA's prior monitoring data. Ground water monitoring data confirmed EPA's finding (CDM, 1999d) that the site does not affect the underlying water-bearing zones.

5. Quarterly monitoring of ground water, soil gas and in-business air conditions have been ongoing at the site by WDIG since September 1997. Chapter 3.0 contains a summary of the monitoring data.

2.3 SUMMARY OF EPA SUPPLEMENTAL SITE CHARACTERIZATION ACTIVITIES CONDUCTED SINCE 1997

1. The following subsections present the objectives and findings of the various studies completed by CDM Federal Programs Corporation (CDM Federal) and the Environmental Response Team (ERT) for EPA since 1997 at the WDI site. The findings and conclusions of EPA's (CDM Federal and ERT) investigation of soils, soil gas, reservoir conditions and ground water are summarized below.

2. Chapter 3.0 provides information of the findings made by WDIG during their field investigations. The information below does not necessarily concur with WDIGs findings. Chapter 3.0 addresses these differences.

2.3.1 SOIL CONDITIONS

2.3.1.1 Area 7 Geoprobe Characterization

1. In August 1998, ERT conducted a geoprobe investigation (e.g., collection of several 1-inch diameter continuous cores, see Figure 2.4) of Area 7 to locate a possible perched liquids zone for application of the vacuum-enhanced extraction technology for removal of gases and liquids from the buried waste (ERT, 1998).

2. The objectives of the Area 7 study were as follows:
   - To characterize the buried wastes, including the characteristics and location of contaminated soils and liquids.
   - To locate a perched liquids zone for application of the vacuum-enhanced extraction technology for removal of gases and liquids from the buried wastes.

3. The following observations and conclusions were made by ERT based on the information collected during the investigation:
   - Fill, approximately 16 to 20 feet deep, consists of a silt to sandy silt matrix with concrete and other debris.
   - Fill material appears to be underlain by a natural, undisturbed, fine, well-sorted sand or, in some places, possibly a silt.
   - Area of stained soil containing oily liquids (see Figure 2.5).
   - Extent of soil staining is on the order of 200,000 cubic feet (ft^3).
   - Volume of soil containing liquids is approximately 50,000 ft^3.
   - Liquid volume is approximately 2,500 ft^3 (18,700 gallons).
   - Approximately 1,900 gallons (10 percent of liquids) may be recoverable.

2.3.2 RESERVOIR CONDITIONS

2.3.2.1 Reservoir Physical Characterization

1. In an effort to further evaluate the physical characteristics of the reservoir conditions, ERT conducted several investigations of the subsurface in the reservoir area (ERT, 1999a). These investigations included the following:
   - Historical Map Review
   - Geophysical Survey (Dipole-Dipole Resistivity and Terrain Conductivity)
   - Contents (Chemical and Physical) Characterization
   - Structural Characterization

2. ERT's objectives for each of the investigations noted above were as follows:
   - Historical Map Review:
     - Provide information that would help the geophysics investigation locate the reservoir's boundary and provide guidance for planned invasive trenching investigations.
   - Geophysical Survey (Dipole-Dipole Resistivity and Terrain Conductivity):
     - Determine the location and dimensions of the concrete-lined reservoir underlying the WDI site. In addition, to identify areas outside of the reservoir where fluids may have leaked laterally from the reservoir and to delineate the thickness and configuration of the water table aquifer.
   - Contents (Physical and Chemical) Characterization:
     - Physical: Collect lithology information and fluid data (i.e., composition and respective thickness) within the reservoir boundary by installing 1-inch-diameter piezometers at varying depths.
     - Chemical: The objectives and complete description of ERT's chemical characterization of the reservoir are provided later in this chapter in Section 2.3.2.2.
   - Structural Characterization:
     - Locate the reservoir boundary, investigate if free liquids were present along the interior and exterior edges of the reservoir, inspect the surrounding soil for evidence of contamination (staining), and to determine the physical characteristics and integrity of the reservoir through field trenching activities.

3. A summary of the findings during ERT investigations is provided below:
   - Historical Map Review:
     - Review of the maps provided relevant information regarding the location of the reservoir, as well as the site's topographic data.
   - Geophysical Survey (Dipole-Dipole Resistivity and Terrain Conductivity):
     - Dipole-Dipole Resistivity Results:
       - ERT believes "the interpretation of the dipole-dipole resistivity data is somewhat ambiguous, mainly because of the inherent nature of the technique and the lack of boring data against which the survey might be calibrated." Figure 2.6, reproduced from ERT's report, provides an east/west cross section showing the dipole-dipole resistivity results. Three "anomalies" were identified for the geophysical survey:
         - Anomaly 1 represents the reservoir edge and dry berm material.
         - Anomaly 2 includes most of the remaining material, both inside and outside of the reservoir.

- Anomaly 3 includes a small area of high resistivity values, close to the surface and outside of the reservoir. Spectrum, ERT's contractor that performed the geophysical survey, attributes the anomaly to high resistivity hydrocarbon sludge or hydrocarbon saturated soils.

- Terrain Conductivity Results:
  - Terrain conductivity surveys provide two types of measurements. The in-phase results were successful in generally locating the berm and edges of the reservoir. The diameter of the reservoir as determined by the geophysical methods is about 25 feet less than that determined from maps and drawings of the site. In some portions of the circular anomaly marking the general edge of the reservoir, the data contour lines are less dense. These may be areas where the berm has been breached or is partially missing.

- Contents (Physical) Characterization:
  - Piezometers depict the distribution of the liquids within the reservoir, however the phase (nonaqueous/aqueous) thickness data should only be taken as a rough estimate of true thickness.
  - The reservoir fill material includes silt, drilling mud, concrete, brick and wood.

- Structural Characteristics:
  - Reservoir Measurements:
    - The reservoir's concrete liner varies from 3 inches to 4 inches in thickness and has a 1/4-inch reinforcement wire mesh through the middle of the liner. The liner walls slope toward the center at an angle of 27 degrees as measured in the field.
    - The reservoir concrete liner has been measured by geophysical methods to be 575 feet in diameter, but was probably at least originally 600 feet in diameter before the top of the cement wall was broken down several feet for filling and surface grading. During intrusive activities, a berm width of 40 feet was measured at a depth of 6 feet. The measured thickness of the clay berm is approximately 22 feet. The berm is composed of fine, reddish-brown clay.
    - The current depth of the reservoir is believed to be approximately 14 feet below ground surface (bgs) on the eastern side and 12 feet bgs on the western side, relative to the existing ground surface.
  - Reservoir Observations:
    - Overall the reservoir wall appeared to be intact with the exception of the following:
      - Liquid levels were encountered at varying depths ranging from 4 to 12.5 feet bgs.

- At the 12:00 location, the concrete wall was found to be missing to an unknown depth. The excavated material contained a considerable amount of very large rocks and concrete blocks. The clayey berm (mix of red and gray clay) surrounding the outer boundary of the reservoir was compromised, revealing a heterogeneous material, and dark staining to 7 feet beyond (away from) the reservoir wall.
- At the 1:00 location, the concrete wall was cleanly cut (vertically). An apparent "makeshift" wall of large rocks and concrete debris was set back away from the reservoir, approximately 2 feet from where the existing concrete wall was located. The berm material showed evidence of dark staining 7 feet beyond the concrete wall toward the St. Paul School's athletic field, to a depth of approximately 8 feet.
- At the 3:00 location, the reservoir wall was encountered at approximately 6 feet bgs, and revealed several vertical and horizontal fractures.

4. Refer to Figures 2.5 and 2.7 through 2.9 for locations of ERT's field investigations.

2.3.2.2 Reservoir Chemical Characterization:

1. ERT's analytical results obtained from the analysis of aqueous, organic liquid, and vapor samples collected from within the reservoir grid are discussed below (ERT, 1999b). The sample locations for the reservoir chemical characterization are shown in Figure 2.8.

2. Chemical characterization of the contents of the reservoir was performed to meet the following objectives:
   - Differentiate among the liquid-types found in the reservoir; aqueous, light nonaqueous liquids and dense nonaqueous liquids.
   - Chemically characterize the constituents of the liquids for the following two purposes:
     - Determine volatile organic chemical (VOC) composition for the purpose of evaluating VOC generation potential for final remedy design consideration.
     - Determine the chemical composition of hazardous substances for the purpose of evaluating liquids disposal options as part of the final remedy.

3. The results of the reservoir chemical characterization indicated the following conditions:

   - Elevated polychlorinated biphenyls (PCB) levels in Piezometer P-3.
   - Elevated CH_4 levels in the southwest quadrant of the reservoir.
   - The presence of crude oil constituents (SVOCs) in the reservoir liquids.
   - Low levels of chlorinated solvent, degradation products and vinyl chloride (VC) in some areas of the reservoir.

2.3.2.3 Piezometer Study

1. The objective of CDM Federal's reservoir characterization study was to collect soil data to characterize the reservoir contents across the reservoir and to evaluate the presence and types of liquids found above or within the waste mass (CDM, 1999c). The overall intent of the program was to collect data that could be used to identify areas of the reservoir amenable for liquids removal.

2. The following observations and conclusions were made by CDM Federal based on the information collected during the investigation:

   - Waste material consists of fill soil (silt), construction debris (cement, bricks, wood), muds and oily-wastes.
   - 52 of the 60 boreholes exhibited liquids in the soil cores.
   - Over time (24 hours) all of the probes exhibited liquids.
   - Liquid levels ranged from surface to approximately 6 to 8 feet below ground surface (bgs).

3. CDM Federal concluded that the results of the piezometer installation work demonstrated that the reservoir contains free liquids, in both aqueous and nonaqueous phases (see Figure 2.8). In some locations the liquids appear to be perched on top of the waste materials, and at other locations the liquids appear to extend near to the bottom of the reservoir. The distribution of liquids appears to reflect the manner in which wastes were disposed of in the reservoir. Waste disposal occurred over several years, apparently in batches of varying materials. Some of the materials appear to be drilling muds, whereas other materials appear to be construction debris. Some materials appeared to contain oil. The observed liquid levels are not indicative of the actual level found within the reservoir nor the volume of liquids. The results of this investigation indicated that liquids are probably associated with thin seams and discrete zones of limited permeability within the wastes. Although perched liquids were encountered at some locations, liquids were observed throughout the waste mass.

2.3.2.4 High Vacuum Extraction

1. ERT conducted two vacuum-enhanced extraction tests as a possible method for extracting reservoir liquids (ERT, 1999c). This technology was believed by ERT to be potentially applicable to the WDI site because of site conditions (e.g., CH_4 and hydrocarbons detected in reservoir wells). ERT performed the test using extraction wells (EX) EX-1 and EX-2. The wells were installed by WDIG for TM No. 6 and 8 field activities.

2. The objective of the tests were as follows:
   - Evaluate the effectiveness of vacuum-enhanced extraction for redeveloping EX-1.
   - Compare the effectiveness of this technology to standard pumping.

3. The principal conclusions drawn from this pilot test are as follows:
   - The objective of developing EX-1 as a free flowing well was not achieved; however, the test did demonstrate that fluid could be drawn into the well under vacuum and that it would return to the formation when the vacuum was released. This confirms the screen and gravel pack were not impeding flow.
   - The sustained rate of liquid extraction achieved from extraction well EX-2 averaged 4.93 gallons/hr during the first 5 days and 2.42 gallon/hr during the next 11 days. This compares to a yield of 3 gallon/hr as obtained by the WDIG using a 24-hour short-term cycle pumping test. Considering that the reservoir contains a fixed volume of fluid and the limited zone of influence, the yield is expected to decrease as liquid is removed by each test. Applying the vacuum appears to enhance the rate of liquid recovery and may increase the total volume recovered from a given well.
   - The yield of combustible vapors was substantially less than the fuel requirement of the engine. The highest yield over a 24-hour period was 50,415 BTU/hr compared to a fuel demand of 360,000 BTU/hr. Also, there were extended periods with no measurable fuel being extracted. The rate of biologically produced CH_4 from this site is substantially less than the unit consumes.
   - The influence of the vacuum on liquid levels in the surrounding monitoring wells and piezometers displayed anisotropic conditions with no consistent correlation of drawdown versus distance.
   - This technology is not cost effective for recovering energy or liquids from the reservoir. The poor performance is because of the limited rate at which CH_4 is generated and the low permeability of the material.

2.3.3 SOIL GAS

1. The purpose of CDM Federal's soil gas investigation was to help support EPA's evaluation of the RD for the WDI site under the Subsurface Gas Contingency Plan (EPA, 1997c). Therefore, additional data were collected in order to provide a more comprehensive characterization of the current soil gas conditions. In-business air data were also collected to evaluate whether soil gas is migrating into the buildings onsite creating an explosion (CH_4) or health hazard (VOCs). Specifically, data collected during this investigation were used to address the following objectives:

   - Identify locations within the site and along the boundaries of the site with elevated VOCs and CH_4 concentrations in soil gas that may indicate the migration soil gas emanating from wastes disposed at the site.
   - Obtain current data documenting subsurface gas migration near and below buildings for EPA's use in communicating site conditions to building owners and occupants.
   - Correlate, where possible, soil gas data with indoor air data to determine if there is a link between subsurface gas migration and indoor air quality.
   - Provide a current database for all chemicals found at the site in order to evaluate the proposed subsurface soil gas remedies.

2. The Subsurface Gas Contingency Plan investigation involved the sampling of the existing soil vapor monitoring well network at the WDI site, installation and sampling of temporary soil gas monitoring probes, and collection of in-business air data for analysis of volatile COCs for the WDI site.

3. EPA established, within the Contingency Plan, soil gas Interim Threshold Screening Levels (ITSLs) based on EPA ambient air PRGs. The ITSLs have been established for most site VOCs at concentrations protective of human health as shown in Table 2.1. A comparison of the ITSLs with soil gas concentrations for VOCs and CH_4 show that ITSLs have been exceeded at several locations at the site. VOCs were detected above soil gas ITSLs in 10 wells and 11 temporary probes. CH_4 was above the 5 percent ITSL in five vapor wells and 26 probes. A summary of the VOCs detected in soil gas and the locations of ITSL exceedances are presented in Table 2.2. The location of the existing vapor well network is provided in Figure 2.10.

4. Benzene (Bz) was the VOC most frequently reported above its soil gas ITSL (9 probes/ 7 wells), followed by VC (5 probes/9 wells), chloroform (2 probes/2 wells), tetrachloroethene (PCE) (2 probes, 1 well), and 1,2-dibromoethane (1 probe/2 wells). VC and Bz were the only VOCs detected above ITSLs in the vapor wells in both the September 1997 and August 1998 sampling events. The site boundary ITSL for PCE of 190 parts per billion per volume (ppbv) was exceeded at gas probe GP-31 (PCE = 532 ppbv). This is the only location ITSLs were exceeded along the site boundaries.

5. In order to determine whether CH_4 or VOCs from soil gas have migrated into the buildings onsite, in-business air samples were collected inside the 24 occupied structures on the site. CH_4 was not detected above 50 parts per million (ppm) (0.005 percent) inside any of the buildings. More than 25 VOCs were detected above background concentrations in the in-business air samples. Bz was the chemical detected above ITSLs most frequently. The presence of Bz, toluene, and xylene may be because of the use of petroleum products such as gasoline or motor oil by the businesses onsite. Many of the businesses at the site repair automobiles and store gas cans within the buildings. The presence of trichloroethene (TCE), PCE, and VC in the buildings may be because of the use of solvents and manufacturing processes. VC was only detected once at the building at 12635 Los Nietos Road (Stansell Brothers). VC was not detected in the duplicate sample at this location. The chemical products used as part of the business operations onsite are a more likely source of the VOCs detected within the buildings than the soil gas at the site.

2.3.3.1 Supplemental Subsurface Gas Investigation

1. Site data collected by EPA under the Contingency Plan and by the WDIG in subsequent soil gas investigations identified elevated concentrations of soil gas COCs, in excess of the interim threshold criteria, adjacent to some site buildings. To respond to the decision criteria outlined in the Contingency Plan for exceedance of the interim threshold criteria, EPA determined that near-building soil gas monitoring was warranted for all structures that bordered buried wastes. Based on the partial well network established by the WDIG, EPA determined that 10 building locations met the requirement for permanent monitoring points

between the buried waste and the building. The location of these wells (e.g., GVW-54 through VW-63) is shown in Figure 2.10. The specific objectives of the vapor well installation effort were as follows:

- Complete the near-building permanent soil gas monitoring well network.
- Evaluate concentrations of VOCs in the vicinity of all buildings that bordered buried wastes.
- Assess the potential for preferential gas migration pathways in the vicinity of buildings bordering buried wastes.

2. Four vapor well monitoring locations (VW-55, -57, -58 and -61) exceeded soil gas ITSL criteria for at least one COC. These wells will be sampled on a quarterly basis for the COCs until implementation of the site remedy and a final soil vapor monitoring network is established.

2.3.4 GROUND WATER

1. CDM Federal performed an evaluation to review and assess the WDI ground water monitoring and source characterization data to update the conceptual model for the site and establish a framework for any future long-term ground water monitoring program (CDM, 1999d). The site data and information reviewed included:

   - Ground water elevation and ground water sampling results from the 27 existing monitoring wells at the site as shown in Figure 2.11.
   - Waste source characterization data from soil boring investigations and soil gas sampling.
   - Offsite and regional ground water information.

2. The following conclusions were based on the results and evaluation of ground water and waste source characterization and monitoring completed at WDI during the period October 1988 through April 1998 by CDM Federal:

   - 1997 water level monitoring indicates ground water occurs at depths ranging from 30 to 48 feet bgs (approximately 22 feet below the base elevation of the buried concrete reservoir). The upper water-bearing zone (estimated to be 100 feet or greater in thickness) consists primarily of interbedded and interconnected sandy alluvial deposits without laterally extensive confining beds. The overall direction of ground water flow is towards the south-southeast with a very low horizontal hydraulic gradient (average 0.004 feet/foot).

- The WDI site contains a variety of liquid and solid wastes, many of which are hazardous substances, including petroleum and petroleum-related chemicals, solvents, acetylene sludge, drilling muds, and construction debris (WDI wastes). WDI wastes occur both within and outside of the buried concrete reservoir that was originally used for petroleum storage. Outside of the reservoir, WDI wastes were disposed in unlined excavated sumps and waste pits. Soil boring investigations have confirmed that the interval of buried sump wastes occurs over areas outside of the concrete reservoir (depths generally between 5 and 25 feet bgs).
- The primary contaminants at WDI which have the potential to cause ground water impact include the wastes buried within the concrete reservoir, the buried waste materials disposed outside of the reservoir, and the soil gas. Hazardous constituents detected in WDI waste include Bz, toluene, ethylbenzene, and xylene (BTEX); solvents, primarily TCE, PCE, and associated degradation products (e.g., VC); semivolatile organic compounds (SVOCs); heavy metals (arsenic, chromium, copper, lead), and PCBs. Elevated levels of soil gas are present in the subsurface (vadose zone) outside of the reservoir in many areas of the site. Soil gas hot spots are characterized by elevated levels of BTEX, CH_4, and petroleum hydrocarbon vapor, and chlorinated VOCs.
- No significant impacts from WDI wastes on ground water quality have been identified based on the available ground water sampling results and the comparison of sampling results with the location and characteristics of the waste sources at the site. Several site COCs (VOCs and metals) have been detected above their respective State drinking water maximum contaminant levels (MCLs) in ground water samples. However, these exceedances do not appear to be related to site wastes based on their distribution in ground water (i.e., some contaminants are detected upgradient or laterally away from WDI waste sources).
- The primary VOCs detected in ground water samples are TCE and PCE, generally at concentrations less than 10 micrograms per liter (µg/L). During 1997-98 sampling, PCE was detected at five monitoring wells at concentrations above its MCL of 5 µg/L (maximum 77 µg/L, well GW-11). TCE was detected in ground water above its MCL of 5 µg/L during 1998 sampling at one monitoring well (GW-11, 7.6 µg/L). PCE and TCE have only been detected in the western part of the site in both upgradient and deep monitoring wells. Based on ground water flow conditions, the distribution of detections and information on offsite ground water contamination sites, the source of the PCE and TCE detected in the monitoring wells in the western portion of the WDI site appears to be from solvent releases associated with upgradient chemical or industrial sites.
- Toluene has been detected sporadically in ground water sampled at monitoring wells adjacent to and downgradient of WDI sources (maximum concentration 64 µg/L which is below the MCL for toluene). Toluene is considered a useful indicator chemical for ground water monitoring based on the solubility characteristics of this compound and the fact that it is also present in WDI buried waste and soil gas. However, WDIG has not detected toluene since April 1998.

- There appears to be no light nonaqueous phase liquid (LNAPL) or dense nonaqueous phase liquid (DNAPL) sources contributing to ground water contamination beneath the site since high concentrations (i.e., greater than 1,000 µg/L) of dissolved solvents or BTEX and evidence of oily sheen or floating hydrocarbons have not been observed in any of the ground water sampling conducted at the WDI site.
- Ground water sampling at the WDI site has not shown a consistent distribution or detection of the primary metals (arsenic, chromium, copper, lead) which are present at elevated concentrations in WDI wastes. The concentrations of these metals are generally very low and only isolated sampling rounds have exceeded the MCLs. Evidence of migration or impact to ground water from metals in WDI waste has not been observed in the ground water sampling data.
- Elevated concentrations of aluminum, iron, manganese, and selenium have been detected in ground water samples, in local cases, above primary or secondary drinking water standards. The fact that these metals are detected uniformly across the site (locally at higher concentrations in upgradient wells) suggests that the elevated concentrations reflect a regional water quality condition and are not related to WDI onsite sources.

3.0 SUPPLEMENTAL SITE CHARACTERIZATION

1. This chapter presents the results of the various supplemental site investigative activities conducted by the WDIG, under the 1997 RD Investigative Activities Workplan, as ordered by the Amended Administrative Order, Docket No. 97-09. The scope of the supplemental site investigative activities that is reported herein is listed below:

   - Geoprobe investigation of soil conditions.
   - Vapor well monitoring.
   - In-business air monitoring.
   - Ground water monitoring.
   - Reservoir liquids monitoring and extraction testing.

2. The following subsections present the investigative results by site media (e.g., soil liquids, soil gas, in-business air and ground water). The information summarized below was generated from the following reports:

   - Technical Memorandum No. 7 - Vapor Well Construction Details, November 1997
   - Technical Memoranda Nos. 6, 8 and 12 - Reservoir Liquids Testing Report of Findings, October 1998.
   - Technical Memorandum No. 9A - Soil Vapor Extraction Testing, Report of Findings, March 1999.
   - Technical Memorandum No. 10 - Additional Soil Sampling and Leachability Testing Report of Findings, October 1998.
   - Technical Memorandum No. 11 - Reservoir Area Grading Plans and Waste/Debris Management As-Built report, December 1998.
   - Phase II - Reservoir Interior Tests Trench Excavation, Report of Findings, October, 1998
   - 1998 Annual Ground Water Monitoring Report, March 1999.
   - 1998 Annual In-Business Air Monitoring Report, March 1999.
   - 1998 Annual Soil Gas Monitoring Report, March 1999.

3.1 SOILS AND PERCHED LIQUIDS

3.1.1 SOILS AND PERCHED LIQUIDS CHARACTERIZATION

1. A geoprobe investigation was completed at the site by the WDIG in Fall 1997, following the RD Investigative Activities Workplan, Appendix C, Treatability Study (TRC, 1997a and various addenda). The objectives of this program included the following:

   - Area Inside of the Reservoir:
     - Determine chemical characteristics of the waste materials disposed in the reservoir, and the near surface fill material overlying the waste.
   - Area Outside of the Reservoir:
     - Delineate the areal extent and thickness of sump-like materials below the existing surface of the fill soil. Sump-like materials generally have the appearance of low permeability drilling mud with evidence of petroleum hydrocarbons.

- Determine chemical characteristics of:
  - The fill soil above the sump-like material.
  - The sump-like material.
  - The native soil beneath the sump-like material.
- Analyze the chemistry of perched water observed at several areas with sump-like material.

2. Figure 3.1 shows the location of the geoprobe borings installed to satisfy the above objectives. Probes TS-1 through TS-157 were selected to supplement prior data discussed in Chapter 2.0 and soil gas probe information developed separately by EPA in the summer of 1997 also presented in Chapter 2.0. Probes TS-124 through TS-149 were installed at locations selected to collect representative samples for chemical analysis and geotechnical (primarily permeability) testing. Figure 3.1 also summarizes the soil chemistry and sump-like material thickness data. Table 3.1 summarizes the geotechnical results. Figure 3.2 summarizes the chemical analyses for the perched water samples extracted from two geoprobe locations (TS-137 and TS-142). Finally, Table 3.2 provides total petroleum hydrocarbon (TPH) data for the various materials.

3. The volume of waste material inside the central reservoir is calculated to be approximately 148,000 cubic yards (TRC, 1998). The volume of sump-like material outside the reservoir is calculated to be approximately 211,000 cubic yards, broken down by Site Area (see Figure 3.1) as follows:

APPROXIMATE VOLUME OF SUMP-LIKE MATERIAL BY AREA

SITE AREA	APPROXIMATE VOLUME OF SUMP-LIKE MATERIAL (cubic yards)	AVERAGE THICKNESS OF SUMP-LIKE MATERIAL (feet)
1	900	1.5
2	165,000	12
3	None	—
4	21,000	12
5	10,500	10
6	None	—
7	7,600	12
8	6,200	3
TOTAL	**211,000**	—

5. The chemical profile of the waste material summarized in Figure 3.1 is shown in comparison with the ROD COCs. The criteria used for most constituents is the cleanup criteria presented

in the ROD. Exceptions include Be and Tl, which are compared to their industrial PRGs. This difference in criteria is used because: (1) data from the 1988 RI work showed that background levels for Be and Tl indicated concentrations higher than the original cleanup standards; and (2) the determination that deed restrictions would limit site uses to less than residential (e.g., industrial/commercial) exposures.

6. PCE and VC concentrations are also presented in Figure 3.1. These constituents are not ROD COCs, but have been included because of their occurrence in some of the 1989, 1997 and 1998 soil gas vapor investigations.

7. Observations from the soil chemistry data provided in Figure 3.1 include the following:
   - Area Inside the Reservoir
     - Most constituents for the waste materials (deeper samples at TS-130, -134, -135 and -140) are below cleanup standards. Exceptions are one exceedance of arsenic at a 12-foot depth in TS-135 single exceedances of chromium and PCE at 12-foot depth in TS-130.
     - Constituents for the overlying fill material generally are less than the cleanup criteria. The concentrations of arsenic and chromium at a depth of 3.8 feet in TS-130 are slightly above (30 percent and 32 percent) the cleanup standards. The concentration of arsenic at a depth of 3.3 feet in TS-140 exceeds the cleanup criteria by approximately 10 percent.
   - Area Outside of the Reservoir
     - Sump-like material was observed at most of Area 2, along the inside perimeters of Areas 1 and 8 and within the interior perimeters of Areas 4, 5 and 7.
     - The thickness of sump-like material generally is within the 3- to 10-foot range. Some thicker zones exist in Areas 4 and 5. The Area 4 data correlates well with boring data from the 1995 Predesign investigation discussed in Section 2.2.
     - Soil Chemistry Data Results
       - Overlying Fill
         - Concentrations of Organic Constituents are below PRGs at all locations.
         - Concentrations of metals are generally below PRGs. Outliers include:
           - One occurrence of arsenic and chromium at TS-132.
           - Occurrence of lead at TS-126, 129 and 132.
       - Sump-Like Materials
         - Concentrations of organic constituents are below PRGs at all locations.
         - Concentrations of metals are generally below PRGs. Outliers include only arsenic, chromium and lead at TS-132.

- Underlying Soils
  - Concentrations of metals and organics below PRGs for practically all underlying soil samples. The only exception is one occurrence of arsenic at 20 percent above the PRG at a depth of 18 feet in TS-138.
- Chemistry of Perched Water Observations (see Figure 3.2)
  - Perched water was sampled and analyzed at TS-137 and -141. Analyses of the water from these locations show no detectable concentrations of VOCs.

8. As indicated above, the soils and sump-like materials are generally below hazardous waste criteria. Several outliers of relatively low metals exceedances were observed, primarily in overlying fill soils. Toxicity Characteristics Leaching Procedures (TCLP) testing of selected soil samples is presented in Section 3.1.2.

9. Table 3.1 shows that the fluid conductivities of the subsurface materials vary as follows:

Material	Liquid Hydraulic Conductivity (cm/sec)	Air Conductivity (cm/sec)
• Overlying Fill	10^{-7}	10^{-6} to 10^{-9}
• Sump-like Material	10^{-4} to 10^{-7}	10^{-6} to 10^{-9}
• Underlying Soil (Native)	10^{-3} to 10^{-6}	10^{-4} to 10^{-8}

The most important observations from these data are: (1) the generally low hydraulic; and (2) air conductivities of the sump-like materials and existing fill "cap" soils. These characteristics are similar to those frequently required for a low permeability cap and will greatly reduce the potential for significant infiltration water or gas migration to occur.

10. In summary, the sump-like materials are located over most of Area 2 and limited portions of Areas 1, 4, 5, 7, and 8. The sump-like materials range in thickness from very thin to approximately 18 feet. The chemical profiles for these materials generally show conditions which are below cleanup criteria. In addition, the material has a very low hydraulic conductivity which restricts the migration of either infiltrating water or subsurface gases. The material appears to be relatively nonleachable and impermeable. Additional discussion of the leachability of the materials is presented below.

3.1.2 ADDITIONAL SOIL SAMPLING AND LEACHABILITY TESTING

1. The purpose of TM No. 10 - Additional Soil Sampling and Leachability Testing (TM No. 10) was to determine the potential leachability of site COCs, for use in evaluating the range of remedial alternatives options for areas outside the reservoir as part of the FS process. Refer to Figure 3.3 for TM No. 10 testing locations.

2. The following activities were conducted according to the Scope of Work outlined in TM No. 10:
   - Collect and analyze fill and waste material samples from five locations onsite reservoir and outside.
   - Analyze the samples by TCLP and Soluble Threshold Limit Concentration (STLC) methods.
   - Provide data to compare the characteristics of materials from inside and outside the reservoir.

3.1.2.1 Sampling Procedures and Chemical Analysis

1. Fill and waste material samples were collected from the areas shown in Figure 3.3, using procedures outlined in TM No. 10.

2. Samples collected for total volatiles analysis (EPA Method 8260A) and TCLP testing were collected using an EMCOM sampler following EPA Method 5035. The TCLP samples were extracted with acetic acid or with deionized (DI) water at the laboratory using EPA Method 1311 procedures. The DI water extract was run for a 48-hour period to simulate rain infiltration and analyzed using the methods listed below:
   - EPA Method 8260 (Volatile Organics)
   - EPA Method 8270 (Semivolatile Organics)
   - EPA Method 8081 (Pesticides and PCBs)
   - EPA Method 6010A, 7060, 7421, 7470 and 7740 for metals

3. In addition, a set of the samples extracted using the California CAM-WET Test and analyzed for the constituents listed above with STLC values.

3.1.2.2 Summary of Analytical Results

1. Based on the total VOC data, the following conclusions can be made:
   - Fill Samples (WDI-LS-1 through WDI-LS-5):
     - VOCs would be below TCLP and MCL limits.

- Waste Samples (WDI-LS-1 and WDI-LS-2):
  - VOCs would be below TCLP limits.
- Waste Samples (WDI-LS-3, WDI-LS-4 and WDI-LS-5):
  - VOCs would be below TCLP limits for all the constituents with the exception of VC in sample WDI-LS-3. Sample WDI-LS-3 had a high detection limit (1 to 2 milligrams per kilogram [mg/kg]) for VC; however, the result does not necessarily mean that VC is present.

2. Table 3.3 provides a summary of the TCLP and STLC testing results. Based on the TCLP results, there were no samples with detectable levels which exceed the TCLP limits.

3. The California CAM-WET Test, also known as the STLC Test, is generally considered to be more aggressive than the Federal TCLP Test. The STLC analysis focuses on metals, one VOC (TCE) and pesticides/PCBs. Table 3.3 provides a summary of the STLC data. As indicated in Table 3.3, one exceedance of the STLC for lead was observed, in sample WDI-LS-4 (fill). The sample contained 5.07 mg/L lead compared to the STLC limit of 5.0 mg/L. This exceedance is not considered significant, since it is well within the expected accuracy of the method.

4. To determine the potential for leaching of constituents because of rainwater infiltration, the samples were also extracted using DI water for 48 hours, in comparison to the standard 18 hour TCLP extraction procedure. The results of this comparison indicated the following:
   - The use of DI water significantly reduces the amount of leachable constituents.
   - No exceedances of the TCLP criteria were observed.

3.1.2.3 Conclusions

1. Based on the data generated, it appears that the fill and waste materials are not considered hazardous by Federal TCLP or State STLC criteria. The only exception to this conclusion is VC which had a significantly high detection limit in this testing episode which prohibited determination of the status of VC. However, based on the other VOC levels, it is unlikely that VC will exceed the TCLP limit. As discussed in Section 3.1.2.2, one minor STLC exceedance was observed for lead in Sample WDI-LS-5 (fill). This exceedance is not considered significant since the result is well within the expected range of accuracy for the method.

2. Because of some of the high detection limits observed during this test, a full evaluation of the potential leaching constituents above the MCLs for drinking water could not be completed. The elevated detection limits were because of the presence of oily hydrocarbons and drilling muds from the sump-like materials.

3. Evaluation of the deionized leaching results confirmed that the potential for leaching under rain infiltration conditions is very low, and well below the TCLP acid extraction levels. This indicates that it is unlikely that significant leaching has occurred in the past, which is supported by quarterly ground water data collected at the site.

4. Based on the information presented above, the materials tested appear to be classified as nonhazardous for disposal purposes.

3.2 RESERVOIR LIQUIDS

3.2.1 INITIAL RESERVOIR LIQUIDS INVESTIGATION

1. Figure 3.4 shows the location of Well VW-09, from which reservoir liquids samples were collected and analyzed in October 1997. The figure also summarizes the chemical profile of the sampled reservoir liquids.

2. In October 1997, VW-09 was sampled for liquids and pumped to determine the recharge potential. Sampling of VW-09 liquids indicated the following constituents:
   - VOCs
     - Benzene, ethylbenzene, toluene, 4-methyl-2-pentanone and vinyl chloride at low levels.
   - SVOCs
     - Naphthalene and 2-methylnaphthalene.
   - PCBs
     - Low levels of PCBs were detected, e.g., <0.5 ppm.
   - Methane
     - Low levels of Arsenic, Barium, Cadmium, Chromium, Lead and Nickel were detected.

   Pump testing indicated the well recharged to within 80 percent of the original level within 24 hours. No additional pumping or sampling was conducted until the beginning of TM Nos. 6 and 8. Those results are reported in Section 3.2.2.1.3.

3. Liquid levels were monitored in the reservoir from November 1997 to February 1998. During this period, liquid levels rose significantly because of unprecedented rainfall caused by the global weather pattern known as "El Niño" (see Figure 3.5). There is an anomalous drop in water level at Well P-1, the reason is not apparent.

3.2.2 ADDITIONAL RESERVOIR LIQUIDS INVESTIGATIONS

3.2.2.1 TM Nos. 6, 8 and 12, Reservoir Liquids Testing

1. The purpose of TM Nos. 6, 8 and 12 activities was to assist in determining the hydraulic yield potential and chemical characterization of the liquid material (free and aqueous phase) within the buried reservoir at the WDI site. The specific objectives for each of these activities were as follows:
   - Estimate the hydraulic yield of the saturated portion of the reservoir and extraction well radius of influence.
   - Delineate chemical and physical characteristics of both free and aqueous phases of encountered reservoir liquids.
   - Characterize chemistry of soil gas from evacuated portion of saturated reservoir material, if possible.

2. The results of the initial TM No. 6 activities indicated the liquids extracted during the pump test were being yielded by the overlying fill soils and not the underlying, relatively impermeable waste material. Additional activities consisted of two pump tests to help verify this hypothesis.

3. Liquids recovery tests were also performed as outlined in TM No. 12. The tests consisted of purging 62 1-inch piezometers installed by EPA, noted above, and monitoring the recovery rates of the liquids. The data collected during the TM No. 12 recovery testing was used for the following:
   - Characterize the recharge rates of the reservoir liquids.
   - Determine the presence and recovery rates of liquids as well as free product.
   - Determine if liquid levels return to static/background levels.

3.2.2.1.1 Field Activities

1. This section summarizes the reservoir liquids investigations completed as outlined in TM Nos. 6, 8 and 12. This section also describes how these activities were implemented and discusses changes to the planned Scope of Work that occurred because of encountered field conditions and observations.

2. The Scope of Work for TM No. 6 activities included the following list of tasks:
   - Installation of six extraction wells and 16 monitoring probes.
   - Monitoring of baseline conditions of the liquids in the buried reservoir in the newly installed wells and probes.
   - Performance of a series of step and cycle-pump tests on the extraction wells.
   - Monitoring of free and aqueous phase recovery rates.
   - Sampling of free and aqueous phase liquids in the extraction wells and monitoring probes.
   - Sampling of soil gas in extraction well WDI-EX-2 (EX-2).
   - Liquids sampling at other wells located within the reservoir.

3. The installation of WDI-EX-1 (EX-1) and monitoring probes WDI-P-1, -2, -3 and -4 were completed on December 11 and 12, 1997. The wells and probes were constructed to the bottom of the reservoir, approximately 22 to 24 feet in depth, with screened intervals extending through the fill and waste materials. Figures 3.6 and 3.7 illustrate the subsurface encountered during the well and probe installations.

4. The stratigraphy of the reservoir materials was found to be relatively consistent. A silty sand to sandy silt fill soil layer of approximately 9 to 10 feet thick occurs over an approximately 15-foot layer of black stained clays (drilling muds). Initial monitoring of liquid levels indicated that EX-1 was essentially dry, although the monitoring probes each contained liquids at a consistent elevation. Free product of varying thicknesses was detected at each monitoring probe.

5. Because of the conditions of EX-1 (i.e., dry well) an addendum to TM No. 6 was performed. EX-2 was installed approximately 8 feet to the east and constructed similar to EX-1. Multiple pump tests were performed at EX-2 (0.5 gallons per minute [gpm] and 0.25 gpm).

6. EX-2 was dewatered to the pump inlet in 3 hours and 19 minutes during the 0.5 gpm pump test (see Figure 3.8 for liquid drawdown data). Approximately 93 gallons of liquids were purged from the extraction well. Results from the 0.5 gpm indicated that this procedure could not be implemented because of the low yield from the reservoir material. Following consultation with EPA, a decision was made to reduce the pump rate to 0.25 gpm.

7. EX-2 dewatered in approximately five hours and five minutes during the 0.25 gpm. Approximately 232 gallons of liquids were extracted during this test. At the completion of this time, and after a consultation with EPA, it was decided to complete a series of pump cycle

tests over a 24-hour period to establish if a sustainable liquid extraction rate could be achieved. At full capacity the pump dewatered the wells in approximately two to three minutes. The recharge into the well ranged from 6 to 8 feet (see Figure 3.9 for liquid drawdown data). The pump was cycled on at approximately two to four hour intervals.

8. The approximate radius of influence and liquid drawdown conditions from pumping EX-2 are shown in Figures 3.10 and 3.11. Approximately 325 gallons were extracted from EX-2 during the pump tests.

9. Free and aqueous phase liquids were sampled and analyzed from EX-2 and monitoring probes prior to the 0.5 gpm pump test. EX-2, P-1 and VW-09 were also sampled at the conclusion of the 0.25 gpm pump test since only these wells showed an influence (pressure drop) during the test. Additional wells within the reservoir boundaries were also sampled for liquid characterization. Analytical results are summarized on Table 3.4.

10. A soil gas sample was collected from EX-2 on June 11, 1998. The analytical results of the VOCs detected in the soil gas samples include VC, Bz, TCE, toluene and xylene. These results shown above (TRC, 1998) are higher than previous vapor well monitoring results from within the reservoir area. This is because of the pumping activity which can increase the volatilization of organics from liquids during drawdown and recovery, where the liquids can volatilize to fill the pore space.

11. Microbial analysis of the extraction liquids indicates the presence of aerobic and anaerobic bacteria in the samples, as shown in Table 3.5. In general, the microbial levels were relatively low (i.e., less than 1,000,000 organics/L), with the exception of WDI-NDP-3 (EX-4 monitoring probe) which had 2,400,000 and 2,900,000, anaerobic and aerobic organics/L, respectively. It was anticipated that the anaerobic bacteria levels would likely be in the range of 10 to 100 million organisms per liter given the anaerobic nature of the liquids. The lower than expected anaerobic bacterial levels are consistent with the observed low CH_4 generation rates.

12. Samples of the oily liquids from the pump testing were also analyzed to determine the British Thermal Units (BTU) and sulfur contents to evaluate the potential for these materials to be used as an alternative fuel material, or blended with a fuel source for use in an industrial type boiler or incineration. Oily materials with a BTU over 12,000 may have the potential for use in fuels or fuel blend. Sulfur contents greater than one percent generally reduce the feasibility

of use as a fuel. As shown in Table 3.5, several of the well samples exceed the 12,000 BTU level and therefore could be considered for use in fuels. The sulfur contents of the samples all appear well below the 1 percent level, which could allow their use as a fuel if disposal is required. It must be considered that the oily portion of the liquids is only a small amount of the overall liquids in the reservoir, and therefore use as an alternate fuel may not be practical.

3.2.2.1.2 Pump Testing at EX-4 and EX-6

1. Although it was initially hypothesized that the reservoir liquids were being extracted from overlying fill materials, it appears that the reservoir is behaving in a noncontinuum fashion, in which there appear to be higher permeability lenses filled with liquids with less interconnectability and more varying direction and range of "Zone of Influence" (i.e., individual "liquid containing lenses"). However, to attempt to verify the initial hypothesis, an addendum to TM No. 6, Addendum-TM No. 6 Additional Extraction Wells and Pump Tests, was implemented. The scope of the additional field investigative activities included the following:
   - Installation of four liquid extraction wells (EX-3, -4, -5 and -6) at locations in the reservoir determined in conjunction with EPA's reservoir boring investigation results and 12 associated monitoring probes (see Figure 3.12).
   - Pump cycle tests were performed in the new extraction wells, with associated monitoring in the adjacent well(s) and probes.
   - Liquid samples were collected from the new wells for chemical characterization.

2. The installation of extraction wells EX-3 through -6 and monitoring probes (NSP-1, -2, -3; NDP-1, -2, -3; SSP-1, -2, -3; SDP-1, -2, -3) were similar to other TM No. 6 wells constructions.

3. The stratigraphy of the reservoir materials was consistent with previous TM No. 6 activities (see Figures 3.13 to 3.16).

4. EX-4 was dewatered to the pump inlet in approximately 10 minutes. The extraction well recovered to the sensor after 4.5 days. A complete series of two pump cycle tests were performed over an 18-day period to establish if a sustainable liquid extraction rate could be achieved. A total of approximately 42 gallons of liquids were extracted from EX-4 during this time. Refer to Figure 3.17 for EX-4 pump test recovery data.

5. EX-6 also dewatered in approximately 10 minutes. A complete series of 10 pump cycle tests was performed over a 14-day period to establish if a sustainable liquid extraction rate could be achieved. A total of approximately 139 gallons of liquids were extracted during this test. Refer to Figure 3.18 for EX-6 pump test recovery data.

6. There did not appear to be a radius of influence during the pumping from EX-4 and -6 possibly because of a higher permeability lens bounded by a less permeable material.

7. A total of approximately 180 gallons were extracted from EX-4 and -6 during the pump tests and stored in two separate Baker Tanks from EX-2 purged liquids. These liquids were sampled and handled similar to EX-2 purged liquids.

3.2.2.1.3 TM Nos. 6 and 8 Findings

1. The liquid measurements for all of the extraction wells (EX-1 through EX-6) and the monitoring probes, demonstrates a tremendous variability of the liquid content and permeability characteristics of the solid materials encountered within the reservoir.

2. The presence and thickness of the floating free product also varied in all of the wells. EX-2 did not encounter free product initially; however, a small quantity of product was induced into the well following repeated pumping. EX-4 did not encounter free product during the duration of the pump test activities. Some of the monitoring probes had measurable layers of floating product, ranging from 0.52 inches to 7.27 feet. The free product thickness also varied over time within individual probes, with product thickness deltas in some individual probes as high as 4.77 feet. Table 3.6 shows the liquid levels and the thickness of free product during TM No. 6 activities.

3. The results of the pump tests showed that the reservoir liquids have a relatively low hydraulic yield. The short-term cycle pump tests yielded the following:

PUMP TEST LOCATION	APPROXIMATE AVERAGE YIELD (gpm)
EX-2	0.050
EX-4	0.001
EX-6	0.020

Table 3.7 summarizes the hydraulic yields of the material for the pump tests at EX-2, -4 and -6.

4. Review of the drawdown data from the monitoring probes indicates that the radius of influence from well EX-2 ranges from less than 5 to approximately 20 feet. The following table summarizes the greatest drawdown maximum in each probe.

Monitoring Well	Distance from EX-2	Direction from EX-2	Maximum Drawdown (ft)
P-1	5	North	0.85
VW-09	15	South	3.5
P-2	23	East	--
P-3	26	West	--
P-4	45	East	0.41

Although P-4 was observed to have an influence of drawdown at 45 feet away from EX-2, P-2 is located directly between the two wells (see Figure 3.10 for the location of the well extraction and probes). Discontinuity in the influence sphere is possibly the result of a higher permeability zone/lens. However, during ERT liquids investigations at EX-2, a drawdown in liquid levels was observed at P-2 and P-3.

5. Review of the drawdown data from the monitoring probes during EX-4 and EX-6 pump test did not appear to show an influence of drawdown directly related to pumping. However, there did appear to be minor fluctuations in elevations ranging from 0.1 feet to 0.3 feet. These fluctuations are part of the naturally occurring phenomena (i.e., possibly influenced by changes in barometric pressure) which have been observed throughout TM No. 6 activities.

6. The results of the chemical analyses of the encountered liquids generally did not indicate conditions that would not be expected given the history of deposition at the site. The analyses confirm that the waste material are drilling muds containing petroleum hydrocarbons. Analysis of the reservoir liquids indicates they are not considered a hazardous waste. However, one well, P-3, showed high PCB levels when sampled by EPA. Subsequent samples were collected by WDIG and the PCB levels were within nonhazardous criteria. Tables 3.8, 3.8A and 3.9 summarize the chemical characteristics of the liquids encountered.

7. Soil gas sampling of EX-2 indicated elevated levels of VC, cis-1,2-dichloroethene, Bz, toluene and total xylenes at concentrations of 34, 15, 11, 15 and 7.9 ppm respectively. The gases may have volatized from liquids during pumping and therefore are not expected to be representative of the true soil gas conditions in the reservoir.

3.2.2.2 TM No. 12 Activities

1. Liquid recovery testing of the piezometers was initiated on October 1, 1998. Prior to purging, liquid levels were monitored using a water/oil interface probe (see Table 3.10 for monitoring results). Purging activities were conducted by using a peristaltic pump and placing tygon tubing to the bottom of the piezometer. The piezometers were purged at a rate of approximately 0.15 gpm until the piezometer was dewatered or a minimum of one well volume (approximately one gallon) was purged. The liquid levels were monitored initially, one hour and 24 hours after purging.

2. Observations made during TM No. 12 activities also show the tremendous variability of the liquids and material characteristics encountered within the reservoir boundary. This is supported by the drawdown depths, recovery rates and levels recorded during field activities.

3. Prior to purging, the presence and thickness of the floating free product varied in all the wells ranging from a sheen on the surface to approximately 5.25 feet thick.

4. Drawdown levels measured immediately after pumping activities have shown an influence ranging from no drawdown to purging the piezometer dry (see Table 3.10 for liquid levels).

5. Recovery of the liquids were monitored initially, one hour and 24 hours following purging activities. In some of the piezometers, liquid levels recovered back to and even greater than the original level (i.e., prior to purging). Most of the wells, however, did not recover back to within prepurge liquid levels (i.e., ± 0.20 feet)(1). The following is a summary of the results:

NO. OF PIEZOMETERS	FINAL LIQUID LEVEL CONDITION
4	> original level (prepurge)
28	< original level (prepurge)
30	= original level (prepurge)

Table 3.10 summarizes the liquid levels monitored during field activities.

(1) Based on average liquid level fluctuations observed in wells during TM No. 6 activities.

6. Approximately 65 gallons of liquids were purged during the field activities. The purged liquids were discharged into two 55-gallon drums. Disposal of these liquids was handled during TM No. 11 - Reservoir Grading and Waste/Debris Management activities.

7. At the completion of the recovery monitoring, the piezometers were abandoned by pulling the PVC out of the ground, cutting off the top 4 feet, pushing the PVC back into the ground and then pressure grouting the hole.

3.2.2.2.1 TM No. 6, 8 and 12 Conclusions

1. In order to further investigate the reservoir liquids and materials characteristics, WDIG performed several pump test activities within the reservoir boundary. WDIG's findings indicate that there is a tremendous variability in the liquids and materials characteristics within the reservoir. This is also demonstrated by the data collected during EPA and WDIG trenching activities.

2. Observations and analytical data collected during trenching and TM Nos. 6, 8 and 12 activities showed the following characteristics of the materials encountered within the reservoir:
   - Reservoir liquids consist of infiltrated rainwater and light crude oil.
   - Fill material consists of an extremely heterogeneous silty sand to sandy silt layer intermixed with wood and concrete debris.
   - Waste material consists of black stained clays (drilling muds) with zones of liquid and/or product.
   - Hydraulic characteristics of liquids within reservoir boundary are extremely heterogeneous. Areas of higher permeability lenses which contain liquids were observed in both the fill and sump material.
   - Chemical characteristics of liquids do not indicate the liquids are a hazardous material.

3. Observations made during trenching and additional TM No. 6 and 12 activities support the hypothesis that liquids within the fill and sump material are contained within higher permeability lenses. These pockets are not interconnected and locations are not well defined throughout the reservoir.

4. A total of 22 wells were installed by WDIG to demonstrate whether the liquids in the reservoir could be effectively extracted by pumping activities. The data generated from these wells indicated the following:

   - Three of the six extraction wells were dry. This is possibly because of the undefined areas of higher permeable lenses.
   - Liquid levels appear to be related to the diameter of the wells (see Figure 3.19 for liquid level differences). The levels are influenced by: (1) low permeability of the fill and waste material; (2) limited volume of liquids; and (3) differences in void space determined by the diameter of the boring.
   - Low hydraulic yields of the material. Sustainable short-term yields ranged from 0.001 gpm to 0.050 gpm. The yields would be expected to decrease over time because of the limited zone of influence and volume of free-liquids contained in the higher permeability lenses.
   - Limited radius of influence ranging from less than 5 feet to approximately 20 feet during WDIG activities. However, during ERT's vacuum enhanced testing, an influence was observed >20 feet from the extraction well.

5. The purpose of performing the pumping activities was to demonstrate whether pumping was feasible to extract liquids from the reservoir. Based on the TM Nos. 6, 8 and 12 liquids investigations, pumping or trenching are not viable approaches to efficiently extract liquids from the reservoir. Aside from the mechanical impracticability of liquid extraction, chemical analyses of the liquids show that they are not hazardous. It is also important to note that ground water monitoring results do not indicate releases from the reservoir.

3.3 SOIL GAS

3.3.1 ANNUAL SOIL GAS MONITORING RESULTS

3.3.1.1 Introduction and Purpose

1. An Annual Soil Gas Monitoring Report was submitted to EPA in March 1999 to provide a summary and evaluation of the soil gas data collected by the WDIG from February 1998 through October 1998 at the WDI site.

2. The current vapor well network is composed of the following well groups:

   - VW-01 through -26 installed by EPA in 1989 as part of the RI (Ebasco, 1989d).
   - VW-27 through -55 installed by WDIG in 1998 as part of TM 7, under the RD Investigation Alternative Workplan (TRC, 1997a).
   - VW-56 through -63 installed by EPA in 1998 as part of the Subsurface Gas Contingency Plan (EPA, 1997c).

3. The purpose of the annual report was to review the soil gas conditions observed and to evaluate potential offsite gas migration from WDI sources. The report was prepared with the following objectives:

- Provide a summary of the soil gas data collected during 1998 by WDIG.
- Evaluate the data as to trends or other observations.
- Provide a formal transmittal to the laboratory data and Quality Assurance/Quality Control (QA/QC) to the EPA.
- Submit a proposed modification to the current Soil Gas Monitoring program, based on the findings of the current soil gas conditions.

3.3.1.2 Summary of Prior Soil Gas Investigations

1. The WDIG and EPA conducted soil gas investigative activities during 1997 and 1998, under WDIG's 1997 RD Investigative Activities Workplan (TRC, 1997a) and EPA's 1997 Subsurface Gas Contingency Plan (EPA, 1997). These activities included geoprobe soil gas screening, two soil gas monitoring rounds, in-business air monitoring, the addition of 22 vapor wells installed by WDIG, and the completion of four soil gas monitoring rounds performed by WDIG. Figure 2.10 shows the complete vapor well monitoring network by area.

2. The following criteria were the primary objectives for performing the soil gas characterization activities:

- Determine current soil gas conditions in the following areas:
  - Perimeter of the site.
  - Adjacent to onsite structures.
  - Interior of the site.
- Determine trends in the historical data.
- Evaluate if other compounds that have currently not been assigned site-specific action levels may pose a risk.

3. Interim Action Levels (IALs) for Bz and VC were established as part of EPA's Subsurface Gas Contingency Plan and the Amended Administration Order, Docket 97-09, based on the potential migration of subsurface gas into onsite businesses. A more detailed description of the rationale for these IALs is provided in EPA's Subsurface Gas Contingency Plan and the Amended Administrative Order.

4. To address the risks from CH_4, EPA used the California Integrated Waste Management Board's (IWMB's) CH_4 action level in buildings as their criteria. The IWMB's criteria is as follows:
   - CH_4 levels in buildings will be below 1.25 percent (i.e., 25 percent of the CH_4 lower explosion limit of 5 percent).
   - Subsurface CH_4 levels at the site boundary must be below 5 percent based on California IWMB requirements. An ITSL of 1.25 percent was used by EPA in evaluating the results of the Subsurface Gas Contingency Plan Investigations Report.

3.3.1.3 Additional Soil Gas Activities

1. In July 1998, EPA installed an additional 10 nested vapor wells (VW-54 through VW-63). The nested wells were installed at the locations shown in Figure 2.10, as discussed in Section 2.3.

3.3.1.4 Existing Vapor Well Monitoring Network

1. The current vapor well network as shown in Figure 2.10 is comprised of the following wells:
   - VW-01 through -26 installed by EPA in 1989 as part of the RI.
   - VW-27 through -55 installed by WDIG in 1998 as part of the RD Investigative Activities Workplan.
   - VW-54 through -63 installed by EPA in 1998 as part of Subsurface Gas Contingency Plan.

3.3.1.5 Soil Vapor Monitoring Results

1. Tables 3.11 through 3.14 summarize the analytical results for each sampling event conducted during 1998 for COCs with ITSLs. Figures 3.20 through 3.24 present the CH_4, Bz or VC data by areas.

3.3.1.6 Conclusions

1. Conclusions for the Subsurface Gas Monitoring program are summarized below by site area.

3.3.1.6.1 Area 1

1. In Area 1, the vapor well results indicate the following conditions:
   - Perimeter wells: The perimeter wells in Area 1 are all below the California IWMB 5.0 percent CH_4 standard. VW-35 (deep well), near Los Nietos Road, has shown elevated TCE levels above the ITSL.
   - Onsite structures: VW-18 located near the southeast corner of the site between two buildings has shown elevated Bz levels above the ITSL. VW-44 (deep well), adjacent to Buffalo Bullet, showed elevated VC levels during the first three quarters of monitoring, but dropped below the ITSL in the October sampling event. In-business monitoring of buildings in this area has shown no evidence of soil gas infiltration.
   - Data trends: No significant trends were observed in Area 1. However, the COCs in this area appear more likely to be because of solvent dispersal/dumping rather than reservoir related crude oil activities.
   - Other compounds: VW-10 exceeded the ITSL for VC but decreased to below the ITSL during the October 1998 sampling event.

   Table 3.15 provides a summary of the ITSL exceedances in Area 1.

2. Based on the data collected during the four quarters, the soil gas levels in Area 1 appear to be relatively stable, or in some cases decreasing slightly.

3.3.1.6.2 Area 2

1. The vapor wells in Area 2 have shown the following conditions:
   - Perimeter wells: All of the perimeter wells on the north portion of Area 2 are below the California IWMB criteria and ITSLs.
   - Onsite structures: There are no onsite structures located in Area 2.
   - Data trends: VW-43 (intermediate and deep wells), -45 (shallow and intermediate well) and -48 (shallow, intermediate and deep wells) have shown elevated levels of CH_4, Bz and VC.

2. Two wells, VW-45 and -48, have shown elevated CH_4, Bz and VC levels in the shallow, intermediate and deep wells. These wells are adjacent to the reservoir and may be located in impacted areas (i.e., sump-like material). VW-43, both intermediate and deep wells, have shown elevated levels of CH_4 and VC near the eastern edge of Area 2.

3. RI vapor wells, VW-02 and -03, have shown elevated CH_4 levels above the ITSLs but below the California IWMB standards. VW-4 located in the reservoir area has shown elevated CH_4 levels above 15 percent, and elevated VC and Bz levels above the ITSLs.

4. Soil gas levels in Area 2 are generally higher than the remainder of the site because of the elevated CH_4 and VOC levels in the reservoir. Soil gas levels appear to be relatively stable in Area 2.

5. Table 3.16 provides a summary of the ITSL exceedances in Area 2.

3.3.1.6.3 Areas 3, 4 and 5

1. Vapor well monitoring in Areas 3, 4 and 5 has indicated the following conditions:
   - Perimeter wells: All perimeter wells in Areas 3, 4 and 5 are below the California IWMB standards. Perimeter well VW-30 (deep well), exceeded the ITSL of 1.25 percent for CH_4 in April 1998, but has since decreased to below the ITSL level.
   - Onsite structures: Well VW-51 (intermediate and deep wells), located near the Brothers facility, has shown elevated CH_4, Bz and VC levels as discussed below. In-business monitoring of the Brothers building has shown no evidence of soil gas infiltration.
   - Data trends: No significant trends were observed.

2. VW-51, located near the Brothers facility, has shown elevated CH_4 levels exceeding the 5 percent level in both the intermediate and the deep zones. VW-51-18 (intermediate well) has shown levels of 32.8 percent CH_4 and benzene levels of 6,500 ppb during the October monitoring. VW-51-30 (deep well) during this same period has shown CH_4, Bz and VC levels of 32 percent, 36 ppb and 16 ppb, respectively. Based on these results, additional monitoring of VW-51 is required.

3. Area 5 was included in a recent SVE Treatability Study. The October 1998 monitoring was conducted after completion of the SVE Treatability Study. Soil gas levels in VW-51 have appeared to increase after the study. This phenomenon may require additional evaluation.

4. Table 3.17 provides a summary of the ITSL exceedance in Areas 3, 4 and 5.

3.3.1.6.4 Areas 6 and 7

1. Vapor well monitoring of Areas 6 and 7 has shown the following conditions:
   - Perimeter wells: All perimeter wells in Areas 6 and 7 are below the California IWMB standards and ITSLs.
   - Onsite structures: There are no onsite structures in Areas 6 and 7.
   - Data trends: No significant trends were observed.

2. VW-25 (RI well) has shown varying CH_4 levels since 1989. After completion of the SVE testing in Area 7, the CH_4 concentrations in VW-25 have dropped from approximately 50.7 percent and 33.4 percent in February and April, respectively, to 0.53 percent and 15.5 percent in the July and October monitoring. The July monitoring may have been affected by SVE activities in Area 7. VW-25 will continue to be monitored to determine if the CH_4 levels have been permanently reduced by SVE.

3. Table 3.18 provides a summary of the ITSL exceedance in Areas 7 and 8.

3.3.1.6.5 Area 8

1. Vapor well monitoring in Area 8 has indicated the following conditions:
   - Perimeter wells: All perimeter wells in Area 8 are below the California IWMB standards and ITSLs.
   - Onsite structures: VW-13 (RI well) and VW-23 (RI well) have shown elevated CH_4 and VC levels above the ITSL, but below IALs. In-business monitoring of structures in these areas has shown no indication of soil gas infiltration.
   - Data trends: No significant trends were observed.
   - Other compounds: Area 8 appears to have more detectable levels of chlorinated solvents, (i.e., PCE, TCE, etc.) especially in the southeastern portion. VW-22 (RI well) exceeded the ITSL for TCE in the four quarters of monitoring.

2. In Area 8, VW-23, which has shown levels of VC above the ITSL, has shown a steady decrease in concentration throughout the four quarters, with levels ranging from <20 ppb to 40 ppb for the February, April, July and October sampling events, respectively. VW-23 has also shown a corresponding decrease in CH_4 levels from 4,200 to 330 ppm in the October sampling.

3. Soil gas levels in Area 8 appear to be stable, and in several cases are decreasing.

4. Table 3.18 provides a summary of the ITSL exceedances in Area 8.

3.3.2 ANNUAL IN-BUSINESS AIR MONITORING RESULTS

1. An Annual In-Business Air Monitoring Report was submitted to EPA in March 1999 to provide a summary and evaluation of the methodology, and the in-business air data collected by WDIG from February 1998 through November 1998 at the WDI site.

2. The purpose of the annual report was to review the indoor air conditions of multiple onsite businesses for the site's primary COCs (i.e., CH_4, VC, Bz, TCE, PCE and toluene). The businesses that were monitored during 1998 were selected by the EPA and WDIG based on their relative location to the subsurface material at the site (see Figure 3.25). The quarterly monitoring was performed with the following objectives:
   - Provide a summary of the in-business air data collected during 1998 by WDIG.
   - Evaluate the data as to trends or other observations.
   - Provide a formal transmittal of the laboratory data and QA/QC information to EPA.
   - Submit a proposed modification to the current In-Business Air Monitoring program, based on the findings of the in-business air conditions.

3. The data is based on six sampling events (February 1998 through November 1998 time frame). The indoor air monitoring was initially performed on a monthly basis as requested by EPA because of concerns over potential in-business exposures. After the initial three monitoring rounds (a total of 3 months), the monitoring was decreased to quarterly, concurrent with the vapor well monitoring.

4. Eleven onsite locations were monitored during 1998. Table 3.19 shows the frequency on which sampling occurred for each location.

5. During WDIG's in-business air monitoring, additional information was collected on the chemical inventories for some of the businesses. Refer to Table 3.20 for a summary of the inventory data collected by EPA and the additional information collected by WDIG.

3.3.2.1 In-Business Air Monitoring Results

1. Table 3.21 provides a summary of the COCs ITSL exceedances for the in-business air monitoring for Areas 1, 5, 7 and 8. The following subsections address these exceedances and provide a brief explanation for the possible cause.

2. Figure 3.25 summarizes the analytical results for each sampling event conducted during 1998 for the primary COCs.

3. As indicated above, in-business air monitoring conducted for over 1 year has shown no indication of soil gas infiltration into the onsite businesses. Data presented by EPA indicated that soil gas was not infiltrating into onsite businesses. WDIG has since completed seven rounds of in-business monitoring and has confirmed that soil gas infiltration has not been observed.

3.3.3 TM 9A - SOIL VAPOR EXTRACTION TREATABILITY STUDY

3.3.3.1 Introduction

1. The purpose of TM No. 9A activities was to develop additional field data on various soil gas parameters, including gas generation rates and gas conductivity, in designated areas which have shown elevated CH_4 and VOC concentrations. TM No. 9A activities were performed in two phases. Phase I consisted of active SVE treatment at five designated areas of the site. Phase II consisted of gas recovery monitoring which was initiated immediately following the Phase I activities.

2. The objectives of the SVE testing were to determine the following site-specific parameters at each of the five test locations:
   - Air conductivity in each layer adjacent to the gas-producing, sump-like material layer.
   - SVE radius of influence.
   - Flow versus vacuum ratios.
   - Long-term soil gas concentrations, including rebound.
   - Condensate production.
   - Vapor extraction system and treatment effectiveness.

3. The TM No. 9A Phase I activities were completed between June 1998 to September 1998. The final monitoring round of the Phase II activities was completed in January 1999.

3.3.3.2 Summary of SVE Testing Rationale

1. SVE testing was intended to provide information on the ability of SVE to remove subsurface soil gas (i.e., CH_4, VOCs) from the shallow fill zone and the underlying native soil, as well as to measure CH_4 generation rates in these layers following SVE treatment.

These parameters were determined by collecting both field measurements and analytical laboratory data on the SVE operating conditions and gas constituents during both Phase I and Phase II activities.

2. The SVE testing program was designed to generate data on the ability of an induced subsurface vacuum to withdraw soil gas from five onsite locations selected to represent the different combinations of soil conditions and the proximity between sump-like material and onsite buildings. Refer to Figure 3.26 for test area locations. The SVE data were used to evaluate the air conductivity and potential zone of influence in each area. This measured ability or inability to withdraw soil gas is critical to future consideration of vacuum induced soil gas controls as potentially viable remedial options including the potential for soil gas migration control by SVE.

3. Four of the five SVE test locations were selected based on the presence of sump-like material near potential surface receptors, such as onsite commercial/industrial buildings. The fifth area, Area 8, was included in the test, because, although it is outside the footprint of the sump-like material, it has previously shown elevated levels of VOCs during quarterly soil gas monitoring.

3.3.3.3 Summary of TM No. 9A Activities

1. The scope of work for TM No. 9A activities included the following list of tasks for each SVE test area:
   - Installation of two extraction wells (one shallow well in the fill soils and one deep well in the native soils), eight monitoring wells (four shallow and four deep) and four air injection wells (four deep).
   - Monitoring of baseline conditions of extraction wells.
   - Monitoring performance of the SVE unit, soil gas concentrations and radius of influence during Phase I.
   - Monitoring the soil gas recovery rates during Phase II.

2. The results of SVE testing were used to calculate the following specific soil gas parameters:
   - Air conductivity in the test layers (i.e., fill and native material)
   - CH_4 generation

3. In four of the five test locations two soil vapor extraction wells (one shallow and one deep) were installed. The SVE extraction wells were then surrounded with a specific geometric pattern of zone of influence monitoring wells, and air injection wells. The zone of influence monitoring wells were increasingly distant in different directions from the extraction well to determine the maximum distance at which the extraction vacuum can be measured. In the RV storage lot (Area 2) test location, only one shallow extraction well and four shallow monitoring wells were completed, because of the presence of a perched liquid zone in the deeper native material. Air injection wells were installed in the native soil, beneath the sump-like material layer, except in Area 8, which was located outside the sump material. As indicated above, in the RV storage lot (Area 2), only the shallow test wells were completed, and therefore no air injection wells were installed. The injection wells were arranged in a square geometry around the extraction wells to allow the subsurface area to be swept by SVE.

4. The stratigraphy of the materials encountered was relatively consistent. A silty sand to sandy silt fill layer of at least 5 feet thick occurs over a layer of stained clays (drilling muds), comprising the sump-like material. RV storage lot (Area 2) did not have a deep zone of monitoring because of a perched liquid zone in the native zone. Area 8 was located outside the sump-like material, and therefore no sump-like material was encountered.

5. Prior to the start of SVE operations, the extraction well was purged of two to three well volumes, or until a steady soil gas concentration was observed. The purged gas was monitored for Oxygen (O_2), CH_4, Carbon Dioxide (CO_2) and total VOCs using field instruments (i.e., LANDTEK Methane Monitor).

6. A vacuum was then applied to the extraction well using a commercially available SVE unit rented from King Buck, Inc. of San Diego, California. The gas extracted from the well was treated using a catalytic oxidizer built into the SVE unit and discharged to the atmosphere.

7. Throughout TM No. 9A activities (Phases I and II), the following data were collected on a routine basis from the extraction well, and from the postblower and stack sample points on the SVE unit:

   - Blower vacuum
   - Blower flow rate
   - Barometric pressure
   - Concentrations of the following were monitored by field equipment and sampled using summa canisters for laboratory analysis:
     - CH_4
     - TNMOC
     - O_2
     - CO_2
     - Bz
     - VC
     - Other VOCs

   The vacuum in the zone of influence monitoring wells and the extraction wells was also monitored on a regular basis.

8. After a pressure equilibrium was achieved at the maximum vacuum and flow fields, the SVE test was run under constant conditions for up to 2 weeks until soil gas levels became asymptotic or reached acceptable levels. At the end of the active SVE testing phase (Phase I), the system and extraction well were sampled, and then shut off to allow recovery of the system (Phase II).

9. During the recovery monitoring phase (Phase II), EPA requested that monitoring of the zone of influence wells be conducted. During this additional monitoring phase, it was determined that the O_2 levels were unexpectedly high in some of the extraction and monitoring wells. It was therefore determined that the SVE extraction and monitoring wells be purged of at least one to three well volumes prior to sampling. The well purging process was continued throughout the remainder of the Phase II activities. During this sampling, all of the extraction, monitoring and air injection wells were purged and sampled. Only field data were collected from these wells.

3.3.3.4 Summary of TM No. 9A Results

3.3.3.4.1 Zone of Influence Calculation and Results

1. Various methods have been used to evaluate the potential zone of influence by SVE. The most practical method to estimate the zone of influence is to graph the observed vacuum versus the radial distance from the SVE extraction well.

2. Using the observed vacuum levels collected during TM No. 9A activities from the various monitoring points, the data were plotted for each area. Table 3.22 provides a summary of the estimated zones of influence by area. The calculations are provided in Appendix G of the ROF.

3. Based on the estimated zone of influences presented in Table 3.22, the following was observed in relation to the SVE zone of influence:
   - Shallow areas demonstrated limited zones of influence because of the following conditions:
     - Shallow soils were affected by vertical air infiltration.
     - Shallow soils are more prone to preferential pathways, which can reduce the effective zone of influence.
   - Deep zones demonstrated larger calculated zones of influence ranging from 122 feet to 200 feet. The observed larger zones of influence in the deep soils are likely because of the following reasons:
     - Local lithology of deep zones indicate a higher potential permeability.
     - The deep SVE zones were covered by a low permeable waste layer which increases the effective vacuum by preventing vertical leakage during SVE.
     - The native soils in the deep SVE test are less likely to exhibit preferential flow because of utilities (e.g., pipeline) or other disturbances, as compared to the shallow soils.

4. Based on the SVE data presented in Chapter 3.0 of the ROF, and the zone of influence calculations presented above, the TM No. 9A results indicate that SVE using conventional extraction techniques (i.e., <100 in. WC) and equipment was able to:
   - Generate a zone of influence greater than 30 feet in the shallow fill soils.
   - Generate a substantially greater zone of influence, ranging from 122 to up to 200 feet in the deep native soils. In actual field conditions an effective zone of influence of 80 to 100 feet would be expected.

3.3.3.4.2 Air Conductivity Modeling Results

1. To further evaluate the SVE data, the U.S. Army Corp. of Engineers recommend using an SVE model called GASSOLVE, which was developed by Clemson University. The focus of this model is to calculate the intrinsic permeability of the soil, using various SVE data inputs, and assumptions and default parameters. The GASSOLVE model calculates the intrinsic permeability, both horizontally and vertically, along with a statistical evaluation of error range of the permeability estimate.

2. The GASSOLVE results for the shallow SVE tests indicate the following (see Table 3.23):
   - **Horizontal Permeability** - Permeabilities ranged from 1.8 x 10^{-8} m^2 in Brothers (Area 5), to 6.2 x 10^{-12} m^2 in Area 7. This indicates a generally low permeable soil type consistent with silty sands.
   - **Vertical Permeability** - Vertical permeabilities for the shallow soils were generally on the same order of magnitude as the horizontal permeability, indicating significant surface leakage.
   - **Average Error** - Average errors were generally low, with the exception of Brothers (Area 5). The average error in Area 5 was 33.6 percent. This appears to be caused by variations in vacuum levels during testing.

3. The GASSOLVE results for the Deep SVE tests indicate the following (see Table 3.23):
   - **Horizontal Permeability** - Permeabilities ranged from 5.4 x 10^{-11} m^2 at C&E Die to 8.9 x 10^{-11} m^2 in Brothers (Area 5). This indicates a slightly more permeable soil type relative to the shallow soils, but is still considered a low permeability soil type.
   - **Vertical Permeability** - Vertical permeabilities were generally 2 to 4 orders of magnitude lower than the horizontal permeabilities, indicating only marginal air leakage from the surface.
   - **Average Error** - Average errors were very low (e.g., less than 5 percent).

4. Table 3.24 provides a comparison of the calculated intrinsic permeabilities and the local lithology as discussed above. As shown in Table 3.24, the results of the GASSOLVE modeling are comparable to the local soil conditions.

3.3.3.4.3 Soil Gas Recovery and Generation Evaluation

1. During the soil gas recovery monitoring, the SVE treated areas appeared to go through three phases. These phases were:
   - **No Activity** - After discontinuation of the active SVE, the gas levels (e.g., CH_4, CO_2 and O_2) remained relatively stable.
   - **Aerobic Phase** - During this phase, the wells showed increasing levels of CO_2 and slightly decreasing O_2 levels. This trend appears consistent with aerobic degradation of petroleum hydrocarbons in the soil.
   - **Anaerobic Phase** - After CO_2 levels increased and oxygen levels decreased, low levels of CH_4 were observed to gradually increase. This is consistent with anaerobic degradation of petroleum hydrocarbons.

2. Table 3.25 provides a summary of the soil gas levels at the time of SVE shutdown, and the final soil gas recovery monitoring conducted in January 1999.

3. The following trends were observed during the SVE and monitoring periods:
   - Shallow Soils:
     - Shallow soils demonstrated very low CH_4 levels and slightly elevated CO_2, as shown in Figure 3.27.
     - O_2 level decreased during the rebound monitoring as anticipated.
     - Benzene levels were generally below ITSLs and declined throughout the test as shown in Figure 3.28.
     - Vinyl chloride levels exceeded the ITSL during the initial rebound phase but declined during further monitoring as shown in Figure 3.29.
   - Deep Soils:
     - CH_4 levels increased only slightly during rebound monitoring as compared to the shutdown levels, as shown in Figure 3.27.
     - Benzene levels were generally below ITSLs and declined throughout the test as shown in Figure 3.28.
     - Vinyl chloride levels exceeded the ITSL during the initial rebound phase but declined during further monitoring as shown in Figure 3.29.
     - O_2 level decreased in all areas except Area 8, which is consistent with biodegradation. Area 8 O_2 level increased slightly.
     - CO_2 levels increased in all areas except Area 8, which is also consistent with biodegradation. The CO_2 levels in Area 8 decreased slightly.

4. SVE test data were used to calculate CH_4 generation, based on the concentration in the extraction flow rate. The CH_4 generation rate was calculated separately for SVE tests in the shallow fill layer and in the deep native soil layer. These generation rates were compared with the fundamental calculation discussed next.

5. The potential rate at which gas is generated in the sump-like material layer was first evaluated on a theoretical basis, using the anaerobic reactions that decompose petroleum hydrocarbons and other organic compounds. As discussed in Appendix G of the TM 9A ROF, the sump-like materials below the cover fill layer were represented by a generic alkane, whose size, $CH_{24.5}H_{51}$, is midway in the range of hydrocarbons found at the site. This layer of sump-like materials is assumed to be the only source of significant gas generation.

6. Overall, the low gas generation rate in the sump-like material is incapable of causing enough upward or outward migration of CH_4 and other constituents to be a health risk to people working in onsite businesses or offsite residences, schools, etc. This low flux is easily

captured in a horizontal gas collector (e.g., geotextile, geogrid, geonet) and routed out from under buildings. The flux is also so low that it can be safely vented to the atmosphere rather than requiring a gas destruction system.

3.3.3.4.4 Summary of SVE Performance

1. The objective of the treatability testing was to evaluate the performance of SVE under field conditions. As part of the treatability study, the following performance characteristics were evaluated:
   - Well extraction performance characteristics (i.e., step tests):
     - Step testing was attempted, but was not considered crucial, since the existing vapor well design has clearly established the well design characteristics and capabilities.
   - In-situ air permeability:
     - This was determined using the GASSOLVE modeling.
   - Well gas and effluent gas contaminant concentrations.
   - Potential effects of SVE on local conditions such as ground water.

2. To evaluate the SVE performance, constant rate performance testing was used. Constant rate performance tests are conducted under steady-state conditions to ensure that a representative area of influence is obtained. Relatively stable flow conditions were produced. One exception was the shallow Area 7 wells, which exhibited very low corrected flows because of the low permeability of the soils.

3. Based on the results of the zone of influence modeling, the GASSOLVE modeling and the gas recovery data, the objective of the SVE performance evaluation has been achieved. This includes:
   - Well extraction characteristics:
     - Sufficient data were obtained on wellhead flow and vacuum to allow, if necessary, for design of an SVE system.
     - Sufficient data were obtained on the well characteristics to evaluate the feasibility of SVE, for remedial selection purposes.
   - In-situ air permeability:
     - Sufficient air permeability data were collected in five distinct site areas and at two depths as indicated by the GASSOLVE modeling results.

- Well gas at effluent gas constituent concentrations:
  - Sufficient data were generated on the soil gas characteristics to allow, if necessary, the design of an SVE system as part of a remedial action.
- Potential effects of SVE on local conditions:
  - No effects were observed on ground water levels in the test area.

3.3.3.4.5 SVE Gas Recovery Estimates

1. As part of the TM No. 9A evaluations, an estimate of the mass of contaminants removed during SVE activities was calculated using the method indicated in *Soil Vapor Extraction and Bioventing*, U.S. Army Corps of Engineers (EPA 1110-1-4001, November 1995).

2. Using this method, an estimate of the mass of CH_4, Bz and VC extracted during treatment was developed as indicated in Table 3.26. As indicated in Table 3.26, the mass removal estimates indicated the following:
   - Shallow Soils:
     - CH_4 removal ranged from 0.14 pounds (lbs) in Area 5 to 4.2 lbs in Area 7.
     - Bz removal ranged from 0 lbs in Areas 5 and 8 to 7.0×10^{-5} lbs at C&E Die.
     - VC removal ranged from 0 lbs in Areas 7, 8 and 5 to 2.0×10^{-5} lbs at C&E Die.
   - Deep Soils:
     - CH_4 removal in the deep soils was significantly greater than in the shallow soils. Removal levels ranged from 0.17 lbs in Area 8 to 977 lbs in Area 5. As shown in Table 3.27, both Area 5 and C&E Die yielded substantially larger masses of CH_4 than the other areas. This is consistent with the levels of CH_4 observed during active SVE.
     - Bz removal in the deep soils was consistent with the shallow soil results. Removal masses ranged from 0 to 0.019 lbs in Area 5.
     - VC removal from the deep soils was also consistent with the shallow soils removal levels. Removal levels ranged from 0 to 0.0128 lbs in Area 5.

3.3.3.4.6 SVE Gas Treatment Evaluation

1. As part of the overall evaluation of SVE as a potential Remedial Technology for gas control at the WDI site, an evaluation of the offgas treatment technology was included as one of the overall objectives. Treatment technologies for CH_4 and VOC containing gas streams include the following:
   - Direct emission or release.
   - Adsorption into carbon.
   - Incineration:
     - Incineration using controlled temperature, air flow.
     - Incineration using direct combustion, such as flares.
   - Catalytic oxidation.

2. Treatment or destruction efficiency observed during the above SVE activities ranged from 0 to approximately 60 percent. These levels are relatively lower than anticipated. Although the destruction efficiency was low, there was no significant release of soil gas constituents to the atmosphere. The reasons for the lower-than-expected treatment levels may include the following:
   - **Low Contaminant Concentrations** - The actual mass of contaminants extracted was relatively low in comparison to typical SVE sites, such as USTs and gasoline station cleanup. As the concentration of the gas stream decreases, generally the destruction efficiency also decreases.
   - **Low Oxygen Concentrations** - O_2 is required to be present in the gas stream for a catalytic oxidizer to perform optimally. In most of the test areas, O_2 levels were generally low (i.e., C&E Die, deep testing), which may have prevented or reduce the efficiency of the catalytic oxidizer. Intake air, added to the air stream is designed to increase O_2 levels and improve treatment.
   - **Catalytic Oxidizer Temperature** - The catalytic oxidizer temperature may have been too low to initiate to oxidation reaction, given low O_2 levels and low constituent levels.

3.3.3.5 Summary of Findings

1. Based on the data collected during TM No. 9A activities, the following findings are reported:
   - Site gas generation (i.e., rebound) was very low which is consistent with the gas generation levels theoretically determined in the February 1998 gas generation calculations submitted to EPA.
   - TM No. 9A rebound data confirms that the site has a low overall gas generation potential, and is incapable of generating sufficient gas to facilitate upward migration of gases into onsite business or laterally away from the site.

- SVE was shown to be effective in reducing soil gas levels in the selected areas.
- Soil gas extraction removed a relatively small mass of contaminants, (i.e., lbs) as compared to typical landfill or gas station remediation which can generate tons of material.
- Very low levels of soil gases were extracted from the shallow fill soils adjacent to buildings, indicating that the fill soils are not a significant potential source of emissions to onsite businesses.
- In the deep soils, SVE reduced the soil gas levels significantly, and created a large zone of influence which appears to have temporarily enhanced aerobic biodegradation of the petroleum hydrocarbons.

2. SVE has been shown to be technically feasible for the control of soil gases in the areas outside the reservoir area. Furthermore, SVE data also indicate that a passive technology, such as bioventing, may be feasible for gas control at the site. The data collected during TM No. 9A will be used during the FS to further reevaluate the control of soil gas in selected areas at the WDI site.

3.4 ANNUAL GROUND WATER MONITORING

1. An annual report was submitted to EPA in March 1999 to review the ground water conditions at the WDI site and to evaluate potential ground water contamination from WDI sources. The report was prepared with the following objectives:
   - Summarize the ground water data collected by the WDIG from September 1997 through October 1998.
   - Evaluate the data as to trends or other observations.
   - Provide a formal transmittal of the laboratory data and QA/QC to the EPA.
   - Submit a proposed modification to the current ground water monitoring program, based on the findings of historical and current ground water conditions.

2. On January 14, 1999, CDM Federal submitted to the EPA a ground water evaluation report for the WDI site (CDM Federal, 1999d). The purpose of the evaluation was to review and assess the ground water monitoring and source characterization data, to update the conceptual model for the WDI site, and to establish a framework for future long-term ground water monitoring programs. These findings have been incorporated herein.

3.4.1 REGIONAL AND SITE HYDROGEOLOGIC CONDITIONS

1. CDM Federal's Ground Water Data Evaluation Report provides a detailed description of the regional and site hydrogeologic conditions. The source for CDM Federal's hydrogeologic summary was collected from previous site investigations/characterizations conducted during the 1988 and 1989 RI (EBASCO, 1989b) and subsequent site monitoring data. The following sections summarize the information provided in CDM Federal's report.

3.4.1.1 Regional Hydrogeologic Conditions

1. The WDI site is located in the Whittier Area in the Montebello forebay of the Los Angeles Central Ground Water Basin. Regional geological maps indicate that Recent age alluvium sediments, consisting of sand and gravel, with occasional lenses of clay underlie the site. The recent sediments in the near vicinity of the site attain a maximum thickness of approximately 80 feet and are underlain by the Lakewood and San Pedro formations (primarily Pleistocene age fluvial sedimentary deposits).

2. The Lakewood formation includes the Artesia and Gage aquifers. These aquifers consist of mostly sand interbedded with clay lenses. The Hollydale, Jefferson, Lynwood, Silverado and Sunnyside aquifers are found in the San Pedro formation. This formation consists mostly of sands and gravels, which are also separated by clay lenses.

3.4.1.2 Site Hydrogeologic Conditions

1. Based on RI soil boring characterization (EBASCO, 1989a), the subsurface stratigraphy and materials encountered at the WDI site include:
   - Five to 15 feet of fill material covering the concrete reservoir, waste containment areas, and most of the remainder site.
   - An interval of clay and sandy silt, 10 to 25 feet thick underlies the fill and sump-like material.
   - The near-surface silt layer is underlain by sandy, pebbly, channelized braid river (fluvial) deposits, at least 50 feet thick. These fluvial deposits include medium- and coarse-grained sand and fine-gravel interbedded with discontinuous layers and lenses of clay and silt. A 10-foot thick unit of silt and clay is interbedded with the coarser-grained river deposits in the southeast portion of the site.

- During the 1988-1989 soil boring investigation, ground water was encountered in the upper interval of the sandy and pebbly river deposits at depths ranging from 48 to 65 feet bgs.
- RI borings, drilled to depths of 80 to 130 feet bgs, indicate that interbedded sand and pebbly sand units underlie the shallower fluvial channelized deposits.

2. Recent monitoring (October 1998) shows the depth to ground water at the WDI site to range from approximately 28.5 feet bgs (GW-02) to 48.5 feet bgs (GW-23/GW-24). Table 3.27 shows recent ground water depths measured at the site during October 1998. Table 3.28 shows historical ground water elevations at the site since October 1988.

3. Ground water flow at the site is to the south and southwest. Refer to Figure 3.30 showing the ground water contour map during the 1998 monitoring period for the site.

3.4.1.3 Site Ground Water Conditions

1. CDM Federal calculated the hydraulic gradients (horizontal and vertical), flow velocity and prepared hydrographs for the ground water conditions using monitoring data collected prior to September 1997. The following summarizes the information provided by CDM Federal:
   - Horizontal Ground Water Gradient:
     - Ranges from 0.002 feet/foot (western portion) to 0.003 feet/foot (eastern portion).
     - Increase to 0.035 feet/foot at the southwest corner of the site.
   - Vertical Ground Water Gradient:
     - Maximum downward gradient was 0.052 feet/foot (GW-15 and -16).
     - Vertical hydraulic gradients for well pairs were similar for the 1991 and 1997 monitoring events.
     - However, a significant elevation difference (6.03 feet) and downward gradient (0.121 feet/foot) was observed at well pair GW-23/GW-24.
   - Ground Water Flow Velocity:
     - Based on assumed hydraulic conductivities (50 gallons per day per square foot [gpd/ft^2] for silty/clayey sand; 500 gpd/ft^2 for pebbly sand), velocity of the ground water flow at the site is estimated to range from 6 to 60 feet/year (USEPA, 1993b).
   - Ground Water Hydrographs:
     - Water level trends evident for each well are very similar with a moderate increase in water level between 1988 and 1992, and a pronounced increase between August 1992 and June 1995 monitoring events. September 1997 water levels have declined less than one foot from levels observed during September 1995.

- During the monitoring period reviewed, the highest ground water elevation measured in the vicinity of the buried reservoir was 119.9 feet above mean sea level (msl) (GW-04, September 1995), which is approximately 20 feet below the estimated base of the concrete reservoir.
- The pronounced rise in water levels documented in the site wells for 1992 through 1995 were explained as a period of active aquifer recharging in the Montebello Forebay spreading grounds, which are located immediately north and upgradient of the WDI site. Water levels in the Montebello Forebay wells rose 10 feet or more during this period as a result of the water replenishment operations (TRC, 1996b).
- Ground water elevations appear to have stabilized with minimal fluctuations in depths since 1995. Refer to Table 3.28 showing the change in elevation from previous monitoring episodes.

2. Since the physical characteristics (i.e., depth to ground water, flow direction) of the ground water conditions have not changed significantly at the site during WDIG's 1998 monitoring program, WDIG concurs with CDM Federal's ground water findings.

3.4.2 GROUND WATER SAMPLING RESULTS

1. This section summarizes the chemical characteristics of ground water conditions at the WDI site. This summary was generated from the data compiled since ground water monitoring was initiated in 1988.

2. In September 1997, site ground water monitoring was reinstated when split sampling occurred with EPA and WDIG. Since then, WDIG has been performing quarterly sampling of the complete well network at the site. Table 3.29 provides the EPA methods used for laboratory analysis of the ground water samples collected by WDIG. Figures 3.31 through 3.34 provide a summary of the ground water monitoring data.

3. The following summarizes the analytical ground water conditions at the site conducted by EPA and WDIG sampling events since 1988:
   - VOCs:
     - The most common VOCs reported for ground water samples are TCE and PCE.
     - TCE and PCE are the only VOCs that have been detected above their MCL (5 µg/L for both parameters) in ground water samples.
     - Toluene was detected during several of EPA's monitoring events; however, WDIG has not detected toluene concentrations since September 1997.

- SVOCs:
  - Ground water analysis for SVOCs since 1988 has indicated no consistent pattern and are typically not detected in the ground water at the site. SVOC detection may be the result of trace levels generated from laboratory contamination.
- Pesticides/PCBs:
  - Pesticides or PCBs have not been detected in the ground water.
- Metals:
  - Arsenic, chromium and lead analyses for ground water samples show no consistent distribution or detection above the MCL for these metals. Elevated concentrations of arsenic and chromium have been reported for the upgradient monitoring well (i.e., GW-01), but not consistently for wells across the site. This indicates that the presence of arsenic and chromium may be an artifact or anomaly related to the GW-01 well location.
  - Ground water metals analyses have shown elevated concentrations of aluminum, iron, manganese, and selenium, locally at concentrations above primary or secondary drinking water standards (CDM Federal, 1999). However, the consistency and distribution of detections (i.e., higher concentrations in upgradient wells) suggest that elevated concentrations of these metals represent a regional ground water quality condition, which probably is not related to migration from WDI waste sources.
- LNAPL and DNAPL:
  - At the WDI site, the measured concentrations of VOCs dissolved in ground water have never exceeded 100 µg/L for any potential LNAPL/DNAPL constituents. Therefore, because the ground water beneath the WDI site does not contain dissolved solvents or BTEX at concentrations exceeding 100 µg/L, and an oily sheen has not been observed in any ground water sample, it can be concluded, at present, that no LNAPL or DNAPL sources are contributing to ground water contamination at the site.

3.4.3 SUMMARY

1. Several site COCs (VOCs and metals) have been detected above their respective MCLs in the ground water samples. However, these exceedances do not appear to be related to site wastes based on their distribution in ground water (i.e., some contaminants are detected upgradient or cross-gradient from WDI waste sources).

2. VOCs detected in ground water samples are primarily PCE and TCE, with concentrations generally less than 20 µg/L. PCE and TCE concentrations in several locations are above their respective MCL of 5 µg/L for primary drinking water. These VOCs have been detected only in the western part of the site in both upgradient and deep monitoring wells. Based on ground

water flow conditions, the distributions of detection, and information on offsite ground water contamination sites, the sources of PCE and TCE detected in the western portion of the site appears to be from solvent releases associated with upgradient industrial sites.

3. Toluene has been detected sporadically by EPA (maximum concentration was 64 µg/L which is below its MCL[150 µg/L]) in ground water sampled adjacent to and downgradient of WDI waste sources. WDIG has not detected toluene in the ground water since April 1998.

4. CDM Federal concludes in their Ground Water Data Evaluation Report that no significant impact on ground water has been identified from the WDI site based on available ground water sampling results and the location and characteristics of the waste sources at the site. WDIG generally concurs with this conclusion since data collected by WDIG from September 1997 through October 1998 are consistent with CDM Federal's.

3.5 STORMWATER

3.5.1 STORMWATER MONITORING

1. The site's Stormwater Pollution Prevention Plan (SWPPP) has two objectives: (1) identify existing and potential sources of pollution which may affect the quality of stormwater discharges associated with the site, and (2) propose and implement the necessary practices that will reduce the introduction of the potential pollutants into stormwater discharges associated with specific areas of the site.

2. In 1998, WDIG and EPA designated five stormwater monitoring points onsite to meet the objectives of the SWPPP. Refer to Figure 3.35 for the locations of the monitoring points. Two of the monitoring points were designed to prevent potential flooding of buildings at two locations. Surface water runoff at the site is conveyed through start flow and concentrated surface flow areas.

3. Analytical samples collected during the 1997-1998 rainy season indicated the following:
   - Low levels of total suspended solids.
   - Low levels of metals typical of surface soils.
   - No significant levels of site COCs were detected.

3.5.2 TM NO. 11 ACTIVITIES

1. Prior to the 1998-1999 rainy season, WDIG improved site conditions as described in TM No. 11 - Reservoir Area Grading and Waste/Debris Management. The scope of work primarily consisted of improving the stormwater drainage from the reservoir to adjacent areas and structures. The scope also included the disposal of various investigative derived wastes and other miscellaneous debris from the reservoir area of the site.

2. The following activities were conducted in accordance to the TM No. 11 scope of work:
   - Disposal of liquids, clean-out and removal of Baker Tanks.
   - Transportation of miscellaneous debris and concrete material from onsite stockpiles to offsite facilities.
   - Disposal of soil cuttings generated from previous EPA and WDIG soil investigations and monitoring well installations contained in 55-gallon drums, roll-off bins and soil sample cores.
   - Relocation of abandoned city bus from central portion of the reservoir area to the RV Storage Lot.
   - Elevation modifications to existing monitoring wells and probes within the reservoir area.
   - Regrading of the reservoir area.
   - Construction of drainage ditches and berms in selected areas.
   - Decontamination and removal of empty 55-gallon drums to an offsite facility.
   - Reseeding graded areas, including drainage ditches and berms.

3. The rationale for performing the activities outlined in TM No. 11 were as follows:
   - Reduce potential for flooding of nearby businesses (i.e., C&E Die, Buffalo Bullet and H&H Contractors).
   - Reduce potential for surface water infiltration into the concrete lined reservoir area.
   - Final management of investigative derived wastes and miscellaneous debris generated during EPA and WDIG field activities.

4. The scope of work performed during TM No. 11 field activities met the requirements outlined in specifications provided in the TM. Refer to TM No. 11 - Reservoir Area Grading Plans and Waste/Debris Management, dated September 1998.

4.0 SITE CONDITION SUMMARY

1. The site condition summary presented in this chapter was prepared using the results of the field investigations conducted at the site since 1989 by EPA and WDIG. The purpose of the chapter is to translate the tremendous amount of data collected at the site into media specific summaries.

2. Based on the investigations presented in Chapters 2.0 and 3.0, an overall understanding of the site conditions has been developed as shown in Figure 4.1. Using Figure 4.1, the site can be divided in various zones so that different remedial alternatives can be evaluated for each of the various areas of concern in the Supplemental Feasibility Study, based on the specific local site conditions, as described in the following sections.

4.1 SUMMARY OF SOIL CONDITIONS AND PERCHED LIQUIDS

1. As previously discussed, Figure 3.2 provides a delineation of the boundary of the extent of the sump-like materials as determined by the WDIG geoprobe investigation. As shown in Figures 3.1 and 4.1, the extent of the sump-like material has been extended from the 1989 ROD and 1995 Predesign limits.

2. The results of the chemical characterization of the fill soils, the sump-like material and the native soils indicate that the sump-like materials outside the reservoir are primarily composed of drilling muds. The results of the geoprobe chemical analyses as described in Section 3.1.2.2, indicate that these materials are generally nonhazardous. As previously discussed, some elevated levels of Be and Tl have been observed, and been found to be below hazardous levels by TCLP and STLC testing.

3. As indicated in Section 3.1.1, the reservoir materials consist of approximately 5 to 10 feet of overlying fill soils intermixed with broken concrete and construction debris, and approximately 15 to 17 feet of waste material. The waste material is composed of drilling muds, soils, liquids and light crude oil. Chemical characterization of the reservoir materials has indicated the presence of the following types of constituents:
   - Metals
     - Be
     - Tl
     - ROD Standards for Be and Tl are below background levels but not industrial PRGs

- VOCs
  - CH_4
  - BTEX
  - VC
  - Chlorinated Solutes
  - Aliphatic hydrocarbons
  - SVOCs

4. Analyses of perched liquids sampled during the geoprobe investigation indicate the liquids are infiltrated rainwater, with no detection of VOCs. Section 3.1.1 provides a summary of the reservoir liquids conditions. A Treatability Study (TM No. 13) has been planned to further investigate feasibility of extracting the reservoir liquids.

5. The reservoir characterization studies indicate the reservoir materials are considered nonhazardous, with the exception of some areas with liquids containing elevated PCBs as discussed in Section 3.1.2.2.

6. TCLP and STLC tests were conducted, as described in Chapter 3.0, to verify the leachability of the soil characteristics at the WDI site. Results for samples collected for the fill and waste material show these materials are not considered hazardous.

4.2 SUMMARY OF SOIL GAS CONDITIONS

1. As determined from the earlier predesign work and the additional studies completed, elevated CH_4 and VOC concentrations are not prevalent over most of the site. The satisfaction of state regulatory criteria for boundary areas and areas near to most structures has been confirmed. In-business air monitoring of these structures has not indicated elevated levels of the COCs.

2. As shown in Figures 4.2 through 4.6 only a few isolated areas at the boundaries of the waste zone have been identified with CH_4 and VOC levels exceeding the potential action levels shown in Table 4.1. These potential action levels have not been formalized. It is understood by WDIG that the final action levels will be determined by EPA at a later date. The potential action levels shown in Table 4.1 have been used only to delineate potential areas of concern at the site. These areas include:
   - Northwest corner of Area 2 (e.g., RV storage lot)
   - C&E Die building (Area 2)
   - Brothers Machine Shop (Area 5)
   - Northeast Portion of Area 8
   - Area 8 near the auto storage yard

These figures assure that the waste layer contains elevated levels of VOCs and methane. The waste mass itself is likely to exceed the potential action levels.

3. The data presented in Chapter 3.0, Figures 3.20 through 3.24, also indicate that the CIWMB requirements for CH_4 have been satisfied for the boundary areas and in areas near most structures. Two structures (Brothers and C&E Die) and the northeast corner of Area 8 continue to have elevated CH_4 and VOCs detected in vapor wells in the vicinity. In-business air monitoring of these locations has shown no soil gas infiltration.

4. As indicated above, in-business air monitoring conducted for over a 1-year period has shown no soil gas infiltration into the onsite businesses. Data presented by EPA indicated that soil gas was not infiltrating into onsite businesses. WDIG has since completed seven rounds of in-business air monitoring and has confirmed that soil gas infiltration has not been observed.

5. SVE treatability testing conducted in selected areas, (Section 3.3), showed overall low levels of CH_4 and VOCs. SVE testing further show that these constituents could be removed by vapor extraction, and the actual mass of soil gas constituents was relatively small. Based on the results of the SVE testing, CH_4 generation rates were calculated, and found to be very low in February 1998.

6. Reservoir vapor well testing, using EPA's high vacuum extraction testing indicated that the reservoir may contain high levels of CH_4 and VOCs. However, the high vacuum tests clearly indicate that the actual mass of CH_4 and VOCs is very limited, as evidenced by the dramatic drop in BTU levels during the first 24 hours (e.g., $< 2{,}500$ ppm CH_4). Based on this data, the reservoir does not appear to be generating large volumes of CH_4 which is consistent with the gas generation calculations prepared in February 1998 and as discussed in Section 3.3.

7. Based on these results, soil gas at the boundaries of the waste zone appear to be isolated to a number of discrete hot spots. The concentration and mass of the soil gases in these locations does not present a significant health risk, except in areas adjacent to onsite buildings.

4.3 SUMMARY OF GROUND WATER CONDITIONS

1. The results of the Ground Water Monitoring conducted at the site sporadically since 1989 have not shown site-related impacts. Based on these results, no further ground water activities are anticipated, with the exception of long-term monitoring. Two additional wells will be installed in April 1999, by WDIG as requested by EPA and DTSC.

5.0 REMAINING REMEDIAL DESIGN SCHEDULE

5.1 REMAINING FIELD WORK

1. The scope proposed in the 1997 RD Investigative Activities Workplan (TRC, 1997a) has been completed. The only outstanding field activity is the TM No. 13 - Pilot-Scale Treatability Study for Reservoir Liquids Removal. Other ongoing activities include:
   - Quarterly in-business air monitoring.
   - Quarterly vapor well monitoring.
   - Quarterly ground water monitoring.
   - Continued stormwater management.
   - Site fencing and signage maintenance.
   - Maintenance of site conditions (i.e., grass cutting).

2. In addition, the WDIG is committed to performing the scope of activities specified in TM No. 13 - Pilot-Scale Treatability Study for Reservoir Liquids Removal. These activities include:
   - Installation of 10 new extraction wells in the reservoir.
   - Extended pumping of 8 existing and 10 new reservoir wells (see Figure 5.1).
   - Treatment and disposal of the effluent from the wells.

3. TM No. 13 (Rev. 1.0) has been submitted to EPA for final approval. On approval, new well installation will begin approximately April 19, 1999. After completion of the well installations, the well pumping systems, infrastructures and treatment and storage systems will be installed. Startup of the system is tentatively scheduled to begin on May 3, 1999.

5.2 DESIGN ACTIVITIES

1. The design activities, encompass data compilation and analysis, remedial alternatives review and selection, and remedial component design, are encompassed in the following main task descriptions as described in the Amended SOW:
   - Supplemental Feasibility Study
   - 90% and 100% Design Reports

5.3 ADMINISTRATIVE ACTIVITIES

1. Administrative activities include routine reporting, administrative record modifications/additions and public interaction. The main administrative tasks are the following:

   - Monthly Reports
   - ROD Amendment
   - Public Meetings
   - Future WDIG and EPA RA Agreement

5.4 MASTER SCHEDULE

1. The integrated Master RD/RA Schedule is shown in Figure 5.2. As is illustrated the general timeframes for the RD activities are:

   - Field Activities: TM No. 13 Activities April 1999 through December 1999
   - Monitoring Activities: Quarterly until at least the RA phase
   - Supplemental Feasibility Study
   - Design Activities
   - Administrative Activities: August 1998 through April 1999
   - RA Activities: After June 1999

2. It is anticipated that the most critical path elements of this schedule are:

   - Supplemental Feasibility Study Acceptance
   - ROD Amendment
   - 100 percent Design Acceptance

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TABLE 2.1

SOIL GAS AND INDOOR AIR INTERIM THRESHOLD SCREENING LEVELS FOR CONSTITUENTS OF CONCERN WASTE DISPOSAL, INC. SUPERFUND SITE

COMPOUND	SOIL GAS THRESHOLD VALUE (ppbv)	INDOOR AIR THRESHOLD VALUE (ppbv)	SITE BOUNDARY THRESHOLD VALUE (ppbv)
Acetone	31,200	312.0	15,600
Benzene	200	2.0	100
Carbon Tetrachloride	68	0.68	34
Chloroethane	75,200	752.0	37,600
Chloroform	340	3.4	170
Dibromoethane	6	0.06	3
1,2-Dichloroethane	360	3.6	180
cis-1,2-Dichloroethane	1,860	18.6	930
1,1-Dichloroethane	25,600	356.0	12,800
1,2-Dichloropropane	186	1.86	93
trans-1,2-Dichloroethene	3,680	36.8	1,840
Ethylbenzene	49,000	490.0	24,500
Tetrachloroethene (Perc)	1,064	10.6	532
Toluene	21,200	212.0	10,600
1,1,2-Trichlorethane	440	4.4	220
1,1,1-Trichloroethane	36,800	368.0	18,400
Trichloroethene	822	8.2	411
Vinyl Chloride	25	0.25	12.5
m,p-Xylene	14,280	142.8	7,140
o-Xylene	14,280	142.8	7,140
Methane (%)	5	1.25	1.25

Source: CDM Federal Programs Corporation, Subsurface Gas Contingency Plan Investigation Report, Waste Disposal, Inc. Superfund Site, January 18, 1999.

TABLE 2.2

SUMMARY OF EPA VOLATILE ORGANIC INTERIM THRESHOLD SCREENING LEVEL EXCEEDANCES WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETER	SOIL GAS THRESHOLD LEVEL (ppbv)	VAPOR WELLS		TEMPORARY PROBES		LOCATIONS THAT SOIL GAS THRESHOLD LEVELS ARE EXCEEDED
		Frequency of Detection	Maximum Concentration (ppbv)	Frequency of Detection	Maximum Concentration (ppbv)	
Dichlorofluoromethane	–	2/81	1.1	0/104	ND	–
Chloromethane	–	14/81	6200E	16/104	14,000	–
Vinyl chloride	25	21/81	1,700	16/104	1,600	VW4, VW8, VW9, VW10, VW14, VW22, MP-1, MP-2, GP9, GP40, GP41, GP78, GP172
Bromomethane	–	0/81	ND	1/104	5	–
Chloroethane	75,200	1/81	60J	1/104	238	–
1,1-Dichloroethene	–	9/81	86J	3/104	280	–
Trichlorofluoromethane	–	8/81	60	0/104	ND	–
Acetone	31,200	30/44	6,414B	77/94	29,000B	–
Methylene Chloride	–	18/81	580J	7/104	240	–
trans-1,2-Dichloroethene	3,680	7/81	58J	0/104	ND	–
1,1-Dichloroethane	25,600	16/81	658	1/104	240	–
cis-1,2-Dichloroethene	1,860	17/81	1,629	9/104	240	–
2-Butanone	–	3/36	89	36/94	6,020B	–
Chloroform	340	17/81	820	5/104	8,400	VW18, MP-1, GP12, GP175
1,1,1-Trichloroethane	36,800	18/81	3,100	6/104	1,900E	–
Carbon Tetrachloride	68	1/81	78	0/104	ND	VW8
Benzene	200	41/81	19,000	39/104	31,000E	VW4, VW9, VW10, VW18, VW22, MP-1, MP-2, GP7, GP9, GP12, GP40, GP41, GP48, GP172, GP175, GP186

NA = Not Analyzed
ND = Not Detected
B = Compound detected in the associated laboratory blank
J = Approximate concentration
E = Qualifier defined in validation report
VW = Vapor Well
GP = Gas Probe (Temporary)
MP = Monitoring Probe
-- = Not Applicable

TRC

TABLE 2.2

SUMMARY OF EPA VOLATILE ORGANIC INTERIM THRESHOLD SCREENING LEVEL EXCEEDANCES WASTE DISPOSAL, INC. SUPERFUND SITE (Continued)

PARAMETER	SOIL GAS THRESHOLD LEVEL (ppbv)	VAPOR WELLS		TEMPORARY PROBES		LOCATIONS THAT SOIL GAS THRESHOLD LEVELS ARE EXCEEDED
		Frequency of Detection	Maximum Concentration (ppbv)	Frequency of Detection	Maximum Concentration (ppbv)	
1,2-Dichloroethane	360	7/81	293	6/104	430	GP175
Trichloroethene	822	40/81	2,200	13/104	780	VW22, VW23, MP-2
Bromodichloromethane	–	4/38	1,183	NA	NA	–
1,2-Dichloropropane	186	4/81	215	2/104	230	VW14, GP78
Toluene	21,200	40/81	17,000	31/104	16,000E	–
1,1,2-Trichloroethane	440	1/81	12,0J	0/104	ND	–
Dibromochloromethane	–	1/81	21J	0/94	ND	–
Tetrachloroethene	1,064	42/81	1,088	21/104	1,700D	VW23, GP31, GP172
1,2-Dibromoethene (EDB)	6	3/81	285	1/104	140	VW24, MP-1, GP78
Chlorobenzene	–	8/81	300	11/104	160	–
Ethylbenzene	49,000	23/81	7,200	29/104	12,000	–
m-& p-Xylene	14,280	26/81	23,000	30/104	19,000J	VW9, GP12
o-Xylene	14,280	14/81	7,300	19/104	3,400	–
Styrene	–	1/81	201	NA	NA	–
1,1,2,2-Tetrachloroethane	–	1/81	0.77	1/104	76	–
1,3,5-Trimethylbenzene	–	6/60	2,700	NA	NA	–
1,2,4-Trimethylbenzene	–	6/37	5,000	NA	NA	–
1,3-Dichlorobenzene	–	1/81	0.78	0/104	ND	–
1,4-Dichlorobenzene	–	3/81	0.92	8/104	76	–
1,2-Dichlorobenzene	–	8/81	57	10/104	49	–

NA = Not Analyzed
ND = Not Detected
B = Compound detected in the associated laboratory blank
J = Approximate concentration
E = Qualifier defined in validation report
VW = Vapor Well
GP = Gas Probe (Temporary)
MP = Monitoring Probe
-- = Not Applicable

TRC

TABLE 3.1

GEOTECHNICAL RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE

SAMPLE LOCATION	DEPTH (feet)	LAYER	AIR CONDUCTIVITY (cm/sec)	HYDRAULIC CONDUCTIVITY (cm/sec)	USCS CLASSIFICATION
TS-136	10 - 11	Sump-Like	4.41 E-10	2.70E - 06	SM
	17 - 18	Native	1.59 E-06	5.90E - 07	ML
TS-137	8.5 - 9.2	Sump-Like	4.28 E-07	4.35E - 05	ML
	31.5 - 32.2	Native	4.04 E-04	7.06E - 04	SP
TS-138	11.3 - 12.0	Sump-Like	2.18 E-10	1.98E - 06	SP
	25.1 - 25.8	Native	2.16 E-04	1.07E - 04	SM
TS-139	6.0 - 7.0	Sump-Like	4.19 E-10	2.13E - 06	SM
	14.0 - 15.0	Native	1.14 E-08	4.49E - 06	SP
TS-141	15.0 - 15.6	Sump-Like	4.65 E-07	1.03E - 04	GP/SP
	18.0 - 19.0	Native	2.53 E-09	8.37E - 08	ML
TS-142	11.0 - 12.0	Sump-Like	8.70 E-09	3.33E - 06	SM
	16.0 - 17.0	Native	1.07 E-08	1.63E - 07	ML
TS-148	3.0 - 5.0	Fill	2.34 E-08	1.13E - 07	ML
	10.0 - 12.0	Sump-Like	9.50 E-09	3.07E - 07	ML
TS-25	0 - 3	Fill	1.38 E-06	--	ML
	7 - 10	Sump-Like	3.74 E-09	--	ML
TS-56	2 - 4	Fill	2.24 E-09	--	ML
	12 - 14	Sump-Like	2.13 E-10	--	ML

94-256/Rpts/ReDeInSuRe/Tbls&Figs (new) (4/16/99/rm)

-- = Not tested

Note: Preliminary laboratory data; has not undergone rigorous QA/QC or validation. This data and associated interpretations are subject to change.

TABLE 3.2

TPH ANALYSES RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE

SAMPLE LOCATION	TOTAL HYDROCARBON MATRIX (mg/kg)	
TS-127	23,000	Fill
	970	Sump
	<50	Native
TS-128	2,900	Fill
	84,000	Sump
	<50	Native
TS-129	<50	Fill
	45,000	Sump
	<50	Native
TS-130	2,900	Fill
	26,000	Sump
TS-131	<50	Fill
TS-136	1,800	Fill
	34,000	Sump
	<50	Native
TS-137	2,400	Fill
	370	Sump
	8,000	Native
TS-138	2,700	Fill
	210	Sump
	<50	Native
TS-139	880	Fill
	2,500	Sump
	<50	Native
TS-140	3,800	Fill
	7,500	Sump
TS-141	21,00	Fill
	16,000	Sump
	690	Native
TS-142	80	Fill
	<50	Sump
	<50	Native

NA = Not Analyzed

ND = Not Detected

Note: Preliminary laboratory data; has not undergone rigorous QA/QC or validation. This data and associated interpretations are subject to change.

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TABLE 3.3

SUMMARY OF TCLP AND STLC RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE

SAMPLE NO.	AREA	SAMPLE TYPE	TCLP EXTRACT RESULTS	STLC EXTRACT RESULTS
			Constituents Exceeding TCLP(1)	Constituents Exceeding STLC
WDI-LS-1	7	Fill	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's None Metals None Pesticides/PCB's None
WDI-LS-1	7	Waste	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) PCE(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None
WDI-LS-2	4	Fill	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None

(1) Laboratory reporting limit for this compound exceeds TCLP limits.
(2) Using a value of one half the detection limit, the compound would be less than the TCLP limit.
(3) Does not necessarily mean vinyl chloride is present, only that the detection limit is 1.0 to 1.9 mg/L.

TABLE 3.3

SUMMARY OF TCLP AND STLC RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

SAMPLE NO.	AREA	SAMPLE TYPE	TCLP EXTRACT RESULTS Constituents Exceeding TCLP[1]	STLC EXTRACT RESULTS Constituents Exceeding STLC
WDI-LS-2	4	Waste	VOC's Benzene[2] Carbon Tetrachloride[2] 1,2 Dichloroethane[2] 1,1 Dichloroethene[2] PCE[2] TCE[2] Vinyl Chloride[3] SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None
WDI-LS-3	5	Fill	VOC's Benzene[2] Carbon Tetrachloride[2] 1,2 Dichloroethane[2] TCE[2] Vinyl Chloride[3] SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None
WDI-LS-3	5	Waste	VOC's Benzene[2] Carbon Tetrachloride[2] 1,2 Dichloroethane[2] 1,1 Dichloroethene[2] PCE[2] TCE[2] Vinyl Chloride[3] SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None

(1) Laboratory reporting limit for this compound exceeds TCLP limits.
(2) Using a value of one half the detection limit, the compound would be less than the TCLP limit.
(3) Does not necessarily mean vinyl chloride is present, only that the detection limit is 1.0 to 1.9 mg/L.

TABLE 3.3

SUMMARY OF TCLP AND STLC RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

SAMPLE NO.	AREA	SAMPLE TYPE	TCLP EXTRACT RESULTS	STLC EXTRACT RESULTS
			Constituents Exceeding TCLP(1)	Constituents Exceeding STLC
WDI-LS-4	2	Fill	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None
WDI-LS-4	2	Waste	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals Lead(4) Pesticides/PCB's None
WDI-LS-5	R	Fill	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) PCE(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None

(1) Laboratory reporting limit for this compound exceeds TCLP limits.
(2) Using a value of one half the detection limit, the compound would be less than the TCLP limit.
(3) Does not necessarily mean vinyl chloride is present, only that the detection limit is 1.0 to 1.9 mg/L.
(4) A value of 5.07 mg/L, marginally exceeded the STLC limit of 5.0 mg/L.

TABLE 3.3

SUMMARY OF TCLP AND STLC RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

SAMPLE NO.	AREA	SAMPLE TYPE	TCLP EXTRACT RESULTS Constituents Exceeding TCLP(1)	STLC EXTRACT RESULTS Constituents Exceeding STLC
WDI-LS-5	R	Waste	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) PCE(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None

94-256/Rpts/ReDeInSuRe/Tbls&Figs(new) (4/16/99/rm)

(1) Laboratory reporting limit for this compound exceeds TCLP limits.
(2) Using a value of one half the detection limit, the compound would be less than the TCLP limit.
(3) A value of 5.07 mg/L, marginally exceeded the STLC limit of 5.0 mg/L.

TABLE 3.4
SUMMARY OF TM NOS. 6 AND 8 DETECTED CHEMICAL DATA FOR EX-2 PUMP TESTS[1]
WASTE DISPOSAL, INC. SUPERFUND SITE

WELL NO. (Phase)	VOLATILE ORGANICS EPA METHOD 8260			SEMIVOLATILE ORGANICS EPA METHOD 8270			PESTICIDES/PCBs EPA METHOD 8081			METALS EPA METHOD[2]			OIL AND GREASE EPA METHOD 413.2 (mg/L)		TOTAL PETROLEUM HYDROCARBONS EPA METHOD 418.1 (mg/L)		SIMULATED DISTILLATION MODIFIED EPA 3550/8015	
	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	5/11/98[3]	6/11/98[4]	5/11/98[3]	6/11/98[4]	Carbon Range	%
EX-2 (Aqueous Phase)	Acetone	1.8	1.6	2-Methyl Phenol	0.23	<0.5	PCB-1248	<0.001	<0.050	Arsenic	0.097	0.12						
	Benzene	1.5	0.84	4-Methyl Phenol	2.2	4.0	PCB-1254	<0.001	<0.050	Barium	0.29	0.22						
	Chloroform	ND	0.43	Phenol	1.8	3.0	PCB-1260	<0.001	<0.050	Cadmium	<0.025	<0.025						
	2-Butanone	6.6	7.9				Pesticides	ND	ND	Chromium	2.1	<0.025						
	Carbon Disulfide	0.62	<0.25							Lead	<0.025	<0.025	93	45,000	85	44,000	NA	NA
	4-Methyl 2-Pentanone	11.0	13.0							Mercury	<0.006	<0.0002						
	Toluene	1.7	1.4							Nickel	1.5	0.60						
	Trichloroethene	1.0	0.63							Thallium	<0.025	<0.025						
	Vinyl chloride	0.89	0.51															
P-1 (Aqueous Phase)	Acetone	ND	0.15	2-Methylnaphthalene	47.0	1.5	PCB-1248	0.13	<0.002	Arsenic	0.15	0.16						
	Benzene	1.6	1.1	Naphthalene	19.0	0.81	PCB-1254	<0.05	<0.002	Barium	0.56	0.50						
	2-Butanone	2.7	0.80	4-Methylphenol	ND	0.900	PCB-1260	0.42	<0.002	Cadmium	<0.025	<0.025						
	Chloroform	ND	0.079				Pesticides	ND	ND	Chromium	<0.025	<0.025						
	Ethylbenzene	0.29	0.22							Lead	0.065	0.11	280	3,900	280	3,700	NA	NA
	4-Methyl 2-Pentanone	5.5	2.4							Mercury	<0.0006	<0.0002						
	Toluene	2.2	1.2							Nickel	0.098	0.095						
	Trans-1, 2-Dichlorethane	ND	0.048							Thallium	<0.025	<0.025						
	Trichloroethene	ND	0.040															
	Vinyl chloride	ND	0.470															
P-2 (Aqueous Phase)	Acetone	1.2	NA	2-Methylnaphthalene	1.7	NA	PCB-1248	<0.0025	NA	Arsenic	0.27	NA						
	Benzene	0.64	NA	4-Methyl Phenol	6.7	NA	PCB-1254	<0.013	NA	Barium	0.17	NA						
	2-Butanone	3.3	NA	Naphthalene	1.2	NA	PCB-1260	0.0025	NA	Cadmium	<0.025	NA						
	4-Methyl 2-Pentanone	3.5	NA	Phenol	7.2	NA	Pesticides	ND	NA	Chromium	0.051	NA						
	Toluene	0.97	NA							Lead	0.040	NA	280	NA	250	NA	NA	NA
	Vinyl chloride	3.0	NA							Mercury	<0.0006	NA						
	Trichloroethane	0.40	NA							Nickel	0.32	NA						
										Thallium	<0.025	NA						
P-3 (Aqueous Phase)	Benzene	0.32	NA	2-Methylnaphthalene	3.9	NA	PCB-1248	0.052	NA	Arsenic	0.16	NA						
	Ethylbenzene	0.41	NA	Naphthalene	1.6	NA	PCB-1254	<0.0025	NA	Barium	4.5	NA						
	Toluene	0.23	NA	Phenol	1.1	NA	PCB-1260	0.580	NA	Cadmium	<0.025	NA						
							Pesticides	ND	NA	Chromium	0.96	NA						
										Lead	2.1	NA	240	NA	230	NA	NA	NA
										Mercury	0.0011	NA						
										Nickel	0.29	NA						
										Thallium	<0.025	NA						

(1) Data presented is considered preliminary and subject to change on receipt of final laboratory reports. Values presented are for selected key constituents and those with detected values.
(2) Various EPA methods are used for the metals analysis.
(3) Pre-Pump Test Analytical Results.
(4) Post-Pump Test Analytical Results. Samples were collected from wells that indicated an influence from EX-2.
(5) Laboratory indicated actual level was approximately 8 ppm of PCB-1248.
(6) Laboratory indicated actual level was approximately 48 ppm of PCB-1260.
NA = Not Analyzed.
ND = Not Detected.

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TABLE 3.4
SUMMARY OF TM NOS. 6 AND 8 DETECTED CHEMICAL DATA FOR EX-2 PUMP TESTS[1]
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

WELL NO (Phase)	VOLATILE ORGANICS EPA METHOD 8260			SEMIVOLATILE ORGANICS EPA METHOD 8270			PESTICIDES/PCBS EPA METHOD 8081			METALS EPA METHOD[2]			OIL AND GREASE EPA METHOD 413.2 (mg/L)		TOTAL PETROLEUM HYDROCARBONS EPA METHOD 418.1 (mg/L)		SIMULATED DISTILLATION MODIFIED EPA 3550/8015		
	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	5/11/98[3]	6/11/98[4]	5/11/98[3]	6/11/98[4]	Carbon Range	% 5/11/98[3]	% 6/11/98[4]
P-4 (Aqueous Phase)	Acetone	1.5	NA	2-Methylnaphthalene	180	NA	PCB-1248	<0.025	NA	Arsenic	0.25	NA	300	NA	290	NA	NA	NA	NA
	Benzene	0.92	NA	Naphthalene	89	NA	PCB-1254	<0.025	NA	Barium	0.55	NA							
	2-Butanone	5.3	NA				PCB-1260	0.047	NA	Cadmium	<0.025	NA							
	Ethylbenzene	0.24	NA				Pesticides	ND	NA	Chromium	<0.025	NA							
	4-Methyl 2-Pentanone	6.2	NA							Lead	<0.025	NA							
	Toluene	1.3	NA							Mercury	<0.0006	NA							
	Vinyl chloride	0.84	NA							Nickel	0.11	NA							
										Thallium	<0.025	NA							
VW-9 (Aqueous Phase)	Acetone	ND	1.6	2-Methylnaphthalene	62	38.0	PCB-1248	0.250	<0.100	Arsenic	0.17	0.13	500	350	430	340	NA	NA	NA
	Benzene	1.7	0.75	Naphthalene	32	<20	PCB-1254	<0.050	<0.100	Barium	0.97	0.39							
	2-Butanone	12.0	8.0				PCB-1260	0.510	<0.100	Cadmium	0.050	<0.025							
	Chloroform	ND	0.40							Chromium	0.074	<0.025							
	Ethylbenzene	2.4	<0.100							Lead	0.72	<0.025							
	4-Methyl 2 Pentanone	4.2	9.1							Mercury	<0.003	<0.0002							
	Toluene	4.3	0.95							Nickel	0.27	0.35							
	Vinyl chloride	0.50	0.42							Thallium	<0.050	<0.025							
P-1 (Free Product)	Benzene	220	110	2-Methylnaphthalene	2,000	2,300	PCB-1248	<5.0	<0.020	Arsenic	<2.0	<2.0	NA	NA	NA	NA	C8 – C13	30.2	28.1
	Ethylbenzene	500	300	Naphthalene	810	<850	PCB-1254	<5.0	<0.020	Barium	1.5	2.3					C14 – C19	33.9	33.4
	Toluene	1,400	760				PCB-1260	14	<0.020	Cadmium	<0.50	<0.50					C20 – C27	21.9	24.6
	Tetrachloroethene	ND	110				Pesticides	ND	ND	Chromium	<1.0	<1.0					C28 – C40	14.0	13.5
	Trichloroethene	ND	70							Lead	<2.0	2.2							
										Mercury	<0.020	<0.020							
										Nickel	2.5	1.7							
										Thallium	<10	<10							
P-2 (Free Product)	Toluene	370	NA	2-Methylnaphthalene	1,700	NA	PCB-1248	<5.0	NA	Arsenic	NA	NA	NA	NA	NA	NA	C8 – C13	37	NA
							PCB-1254	<5.0	NA	Barium	NA	NA					C14 – C19	32.7	NA
							PCB-1260	7.4	NA	Cadmium	NA	NA					C20 – C27	20	NA
							Pesticides	ND	NA	Chromium	NA	NA					C28 – C40	10	NA
										Lead	NA	NA							
										Mercury	NA	NA							
										Nickel	NA	NA							
										Thallium	NA	NA							

(1) Data presented is considered preliminary and subject to change on receipt of final laboratory reports. Values presented are for selected key constituents and those with detected values.
(2) Various EPA methods are used for the metals analysis.
(3) Pre-Pump Test Analytical Results.
(4) Post-Pump Test Analytical Results. Samples were collected from wells that indicated an influence from EX-2.
(5) Laboratory indicated actual level was approximately 8 ppm of PCB-1248.
(6) Laboratory indicated actual level was approximately 48 ppm of PCB-1260.
NA = Not Analyzed.
ND = Not Detected.

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TABLE 3.4
SUMMARY OF TM NOS. 6 AND 8 DETECTED CHEMICAL DATA FOR EX-2 PUMP TESTS[1]
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

WELL NO (Phase)	VOLATILE ORGANICS EPA METHOD 8260			SEMIVOLATILE ORGANICS EPA METHOD 8270			PESTICIDES/PCBS EPA METHOD 8081			METALS EPA METHOD[2]			OIL AND GREASE EPA METHOD 413.2 (mg/L)		TOTAL PETROLEUM HYDROCARBONS EPA METHOD 418.1 (mg/L)		SIMULATED DISTILLATION MODIFIED EPA 3550/8015		
	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	5/11/98[3]	6/11/98[4]	5/11/98[3]	6/11/98[4]	Carbon Range	% 5/11/98[3]	% 6/11/98[4]
P-4 (Aqueous Phase)	Acetone	1.5	NA	2-Methylnaphthalene	180	NA	PCB-1248	<0.025	NA	Arsenic	0.25	NA	300	NA	290	NA	NA	NA	NA
	Benzene	0.92	NA	Naphthalene	89	NA	PCB-1254	<0.025	NA	Barium	0.55	NA							
	2-Butanone	5.3	NA				PCB-1260	0.047	NA	Cadmium	<0.025	NA							
	Ethylbenzene	0.24	NA				Pesticides	ND	NA	Chromium	<0.025	NA							
	4-Methyl 2-Pentanone	6.2	NA							Lead	<0.025	NA							
	Toluene	1.3	NA							Mercury	<0.0006	NA							
	Vinyl chloride	0.84	NA							Nickel	0.11	NA							
										Thallium	<0.025	NA							
VW-9 (Aqueous Phase)	Acetone	ND	1.6	2-Methylnaphthalene	62	38.0	PCB-1248	0.250	<0.100	Arsenic	0.17	0.13	500	350	430	340	NA	NA	NA
	Benzene	1.7	0.75	Naphthalene	32	<20	PCB-1254	<0.050	<0.100	Barium	0.97	0.39							
	2-Butanone	12.0	8.0				PCB-1260	0.510	<0.100	Cadmium	0.050	<0.025							
	Chloroform	ND	0.40							Chromium	0.074	<0.025							
	Ethylbenzene	2.4	<0.100							Lead	0.72	<0.025							
	4-Methyl 2 Pentanone	4.2	9.1							Mercury	<0.003	<0.0002							
	Toluene	4.3	0.95							Nickel	0.27	0.35							
	Vinyl chloride	0.50	0.42							Thallium	<0.050	<0.025							
P-1 (Free Product)	Benzene	220	110	2-Methylnaphthalene	2,000	2,300	PCB-1248	<5.0	<0.020	Arsenic	<2.0	<2.0	NA	NA	NA	NA	C8 – C13	30.2	**28.1**
	Ethylbenzene	500	300	Naphthalene	810	<850	PCB-1254	<5.0	<0.020	Barium	1.5	2.3					C14 – C19	33.9	**33.4**
	Toluene	1,400	760				PCB-1260	14	<0.020	Cadmium	<0.50	<0.50					C20 – C27	21.9	**24.6**
	Tetrachloroethene	ND	110				Pesticides	ND	ND	Chromium	<1.0	<1.0					C28 – C40	14.0	**13.5**
	Trichloroethene	ND	70							Lead	<2.0	2.2							
										Mercury	<0.020	<0.020							
										Nickel	2.5	1.7							
										Thallium	<10	<10							
P-2 (Free Product)	Toluene	370	NA	2-Methylnaphthalene	1,700	NA	PCB-1248	<5.0	NA	Arsenic	NA	NA	NA	NA	NA	NA	C8 – C13	37	**NA**
							PCB-1254	<5.0	NA	Barium	NA	NA					C14 – C19	32.7	**NA**
							PCB-1260	7.4	NA	Cadmium	NA	NA					C20 – C27	20	**NA**
							Pesticides	ND	NA	Chromium	NA	NA					C28 – C40	10	**NA**
										Lead	NA	NA							
										Mercury	NA	NA							
										Nickel	NA	NA							
										Thallium	NA	NA							

(1) Data presented is considered preliminary and subject to change on receipt of final laboratory reports. Values presented are for selected key constituents and those with detected values.
(2) Various EPA methods are used for the metals analysis.
(3) Pre-Pump Test Analytical Results.
(4) Post-Pump Test Analytical Results. Samples were collected from wells that indicated an influence from EX-2.
(5) Laboratory indicated actual level was approximately 8 ppm of PCB-1248.
(6) Laboratory indicated actual level was approximately 48 ppm of PCB-1260.
NA = Not Analyzed.
ND = Not Detected.

TRC

TABLE 3.4
SUMMARY OF TM NOS. 6 AND 8 DETECTED CHEMICAL DATA FOR EX-2 PUMP TESTS[1]
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

ADDITIONAL WELLS IN RESERVOIR (Phase)	VOLATILE ORGANICS EPA METHOD 8260			SEMIVOLATILE ORGANICS EPA METHOD 8270			PESTICIDES/PCBs EPA METHOD 8081			METALS EPA METHOD[2]			OIL AND GREASE EPA METHOD 413.2 (mg/L)		TOTAL PETROLEUM HYDROCARBONS EPA METHOD 418.1 (mg/L)		SIMULATED DISTILLATION MODIFIED EPA 3550/8015		
	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	Constituent (mg/L)	5/11/98[3]	6/11/98[4]	5/11/98[3]	6/11/98[4]	5/11/98[3]	6/11/98[4]	Carbon Range	% 5/11/98[3]	% 6/11/98[4]
PB-2 (Aqueous Phase)	Benzene	NA	0.24	2-Methylphenol	NA	9.4	PCB-1248	NA	<0.10	Arsenic	NA	0.048	NA	NA	NA	NA	NA	NA	NA
	2-Butanone	NA	0.064	Naphthalene	NA	5.1	PCB-1254	NA	<0.10	Barium	NA	0.83							
	Ethylbenzene	NA	0.230				PCB-1260	NA	<0.10	Cadmium	NA	<0.050							
	Toluene	NA	0.110							Chromium	NA	0.033							
										Lead	NA	0.20							
										Mercury	NA	<0.0002							
										Nickel	NA	0.065							
										Thallium	NA	<0.025							
PB-4 (Aqueous Phase)	Benzene	NA	0.079				PCB-1248	NA	<1.0	Arsenic	NA	0.030	NA	NA	NA	NA	NA	NA	NA
	Ethylbenzene	NA	0.0023				PCB-1254	NA	<1.0	Barium	NA	0.080							
	Vinyl Chloride	NA	0.045				PCB-1260	NA	<1.0	Cadmium	NA	<0.025							
										Chromium	NA	<0.025							
										Lead	NA	0.039							
										Mercury	NA	<0.0002							
										Nickel	NA	<0.050							
										Thallium	NA	<0.025							
PB-6 (Aqueous Phase)	Benzene	NA	0.017				PCB-1248	NA	<0.100	Arsenic	NA	0.077	NA	NA	NA	NA	NA	NA	NA
	Ethylbenzene	NA	0.0097				PCB-1254	NA	<0.100	Barium	NA	0.15							
	trans-1,2-Dichloroethene	NA	0.0021				PCB-1260	NA	<0.100	Cadmium	NA	<0.025							
	Toluene	NA	0.0025							Chromium	NA	<0.025							
	Vinyl Chloride	NA	0.035							Lead	NA	<0.025							
										Mercury	NA	<0.0002							
										Nickel	NA	<0.050							
										Thallium	NA	<0.025							
PB-2 (Free Product)	Benzene	NA	19	2-Methylnaphthalene	NA	1,300	PCB-1248	NA	<0.20	Arsenic	NA	<2.0	NA	NA	NA	NA	C8 – C13	NA	25.9
	Ethylbenzene	NA	130				PCB-1254	NA	<0.20	Barium	NA	<1.0					C14 – C19	NA	28.4
	Toluene	NA	63				PCB-1260	NA	<0.20	Cadmium	NA	<0.50					C20 – C27	NA	26.8
										Chromium	NA	<1.0					C28 – C40	NA	18.6
										Lead	NA	<2.0							
										Mercury	NA	<0.020							
										Nickel	NA	<1.0							
										Thallium	NA	<10							

(1) Data presented is considered preliminary and subject to change on receipt of final laboratory reports. Values presented are for selected key constituents and those with detected values.
(2) Various EPA methods are used for the metals analysis.
(3) Pre-Pump Test Analytical Results.
(4) Post-Pump Test Analytical Results. Samples were collected from wells that indicated an influence from EX-2.
(5) Laboratory indicated actual level was approximately 8 ppm of PCB-1248.
(6) Laboratory indicated actual level was approximately 48 ppm of PCB-1260.
NA = Not Analyzed.
ND = Not Detected.

TRC

TABLE 3.5

ADDITIONAL CHEMICAL DATA FOR EX-2, -4 and -6 PUMP TESTS
WASTE DISPOSAL, INC. SUPERFUND SITE

WELL NO.	MICROBIOLOGICAL TESTING						CHEMICAL ANALYSES			
	Anaerobic Bacterial (MPN/L)		Plate Count (CFU/ML)		Species		BTU Value/lb.		Sulfur Content (%)	
	5/11/98[1]	6/11/98[2]	5/11/98[1]	6/11/98[2]	5/11/98[1]	6/11/98[2]	5/11/98[1]	6/11/98[2]	5/11/98[1]	6/11/98[2]
WDI-EX-2 (aqueous phase)	15	430	10	10	Alcaligenes/ Pseudomonas	Alcaligenes/ Pseudomonas	<175	NA	0.049	0.036
WDI-P-1 (aqueous phase)	930,000	930,000	650,000	55,000	Pseudomonas	Alcaligenes/ Pseudomonas	344	NA	0.269	0.750
WDI-P-2 (aqueous phase)	23	NA	60	NA	Alcaligenes/ Pseudomonas	NA	310	NA	0.726	NA
WDI-P-3 (aqueous phase)	430,000	NA	130,000	NA	Pseudomonas	NA	15,980	NA	0.796	NA
WDI-P-4 (aqueous phase)	7,500	NA	23,000	NA	Aeromonas	NA	613	NA	0.655	NA
WDI-VW-9 (aqueous phase)	93,000	75,000	90,000	9,500	Alcaligenes/ Pseudomonas	Alcaligenes/ Pseudomonas	1,160	NA	0.755	0.690
WDI-P-1 (free product)	NA	NA	NA	NA	NA	NA	6,674	9,957	0.836	0.779
WDI-P-2 (free product)	NA	NA	NA	NA	NA	NA	8,750	NA	0.667	NA
WDI-P-3 (free product)	NA	NA	NA	NA	NA	NA	19,166	NA	0.868	NA
WDI-P-4 (free product)	NA	NA	NA	NA	NA	NA	18,921	NA	0.723	NA
WDI-VW-9 (free product)	NA	93,000	NA	80,000	NA	Alcaligenes/ Pseudomonas	18,282	4,186	0.865	0.577

(1) Prepump Test Analytical Data.
(2) Postpump Test Analytical Data. Wells that indicated influence from EX-2 pumping.
NA = Not analyzed

TRC

TABLE 3.5

ADDITIONAL CHEMICAL DATA FOR EX-2, -4 and -6 PUMP TESTS
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

WELL NO.	MICROBIOLOGICAL TESTING			CHEMICAL ANALYSES	
	Anaerobic Bacterial (MPN/L)	Plate Count (CFU/ML)	Species	BTU Value/lb.	Sulfur Content (%)
	8/14/98(1)	8/14/98(1)	8/14/98(1)	8/14/98(1)	8/14/98(1)
WDI-EX-4 (aqueous phase)	75	40	Pseudomonas/ Alcaligenes or putida	NA	NA
WDI-NSP-1 (aqueous phase)	930,000	80,000	Pseudomonas Spp (nol aeruginosa)	NA	NA
WDI-NSP-2 (aqueous phase)	930,000	60,000	Pseudomonas aeruginosa or putida	NA	NA
WDI-NSP-3 (aqueous phase)	930,000	210,000	Pseudomonas aeruginosa or putida	NA	NA
WDI-NDP-1 (aqueous phase)	930,000	45,000	Pseudomonas aeruginosa or putida	NA	NA
WDI-NDP-2 (aqueous phase)	1,500	1,300	Pseudomonas Spp (nol aeruginosa)	NA	NA
WDI-NDP-3 (aqueous phase)	2,400,000	2,900,000	Aeromonas hydrophila	NA	NA
WDI-NDP-3 (free product)	NA	NA	NA	18,928	0.870

94-256 Rpts/ReDeInSuRe/Tbls&Figs(new) (4/16/99/rmm)

(1) Prepump Test Analytical Data.
NA = Not analyzed

TRC

TABLE 3.6

SUMMARY LIQUID LEVEL FIELD MONITORING PRIOR TO PUMP TEST WASTE DISPOSAL, INC. SUPERFUND SITE

WELL I.D.	DATE	DEPTH TO FREE PHASE (ft)	DEPTH TO AQUEOUS PHASE (ft)	FREE PHASE THICKNESS (ft)	CHANGE IN FREE PHASE THICKNESS (ft)
WDI-EX-1	12/16/97	ND	ND	ND	ND
	12/19/97	ND	23.24	ND	ND
	12/26/97	ND	23.21	ND	ND
	2/4/98	22.40	22.80	0.4	NM
	2/11/98	22.30	22.73	0.43	0.03
	2/19/98	22.32	22.70	0.42	0.01
	3/25/98	21.18	22.00	0.82	0.40
	5/4/98	NM	NM	NM	NM
	5/7/98	NM	NM	NM	NM
	5/12/98	NM	NM	NM	NM
	5/13/98	NM	NM	NM	NM
WDI-EX-2	12/16/97	ND	NM	ND	ND
	12/19/97	ND	NM	ND	ND
	12/26/97	ND	NM	ND	ND
	2/4/98	ND	NM	ND	ND
	2/11/98	ND	NM	ND	ND
	2/19/98	ND	NM	ND	ND
	3/25/98	ND	NM	ND	ND
	5/4/98	ND	NM	ND	ND
	5/7/98	ND	4.51	ND	ND
	5/12/98	ND	5.39	ND	ND
	5/13/98	ND	4.54	ND	ND
WDI-P-1	12/16/97	8.06	10.80	2.74	NM
	12/19/97	8.12	9.21	1.09	1.65
	12/26/97	8.10	9.31	1.21	0.12
	2/4/98	7.00	9.95	2.95	1.74
	2/11/98	9.87	13.10	3.23	0.28
	2/19/98	9.33	12.58	3.25	0.02
	3/25/98	8.86	11.89	3.03	0.22
	5/4/98	8.18	10.12	1.94	1.09
	5/7/98	7.80	8.32	0.52	1.42
	5/12/98	8.68	NM	NM	NM
	5/13/98	7.64	NM	NM	NM
WDI-P-2	12/16/97	5.70	6.10	0.40	NM
	12/19/97	5.38	6.50	1.12	0.72
	12/26/97	5.65	6.31	0.66	0.46
	2/4/98	3.45	5.45	2.00	1.34
	2/11/98	3.54	5.39	1.85	0.15
	2/19/98	3.33	4.46	1.13	0.72
	3/25/98	2.70	5.40	2.70	1.57
	5/4/98	2.75	4.05	1.30	1.40

ND = Not Detected
NM = Not Measured

TRC

TABLE 3.6

SUMMARY LIQUID LEVEL FIELD MONITORING PRIOR TO PUMP TEST WASTE DISPOSAL, INC. SUPERFUND SITE (Continued)

WELL I.D.	DATE	DEPTH TO FREE PHASE (ft)	DEPTH TO AQUEOUS PHASE (ft)	FREE PHASE THICKNESS (ft)	CHANGE IN FREE PHASE THICKNESS (ft)
WDI-P-2 (cont.)	5/7/98	2.82	4.52	1.70	0.40
	5/12/98	3.12	NM	NM	NM
	5/13/98	3.02	NM	NM	NM
WDI-P-3	12/16/97	5.10	10.85	5.75	NM
	12/19/97	4.72	10.11	5.39	0.36
	12/26/97	4.92	12.07	7.15	1.76
	2/4/98	2.50	9.71	7.21	0.06
	2/11/98	2.32	7.59	5.27	1.94
	2/19/98	1.94	7.55	5.61	0.34
	3/25/98	1.85	5.84	3.99	1.62
	5/4/98	3.12	4.15	1.03	2.96
	5/7/98	3.18	4.72	1.54	0.51
	5/12/98	3.12	NM	NM	NM
	5/13/98	2.73	NM	NM	NM
WDI-P-4	12/16/97	5.05	7.55	2.50	NM
	12/19/97	0.95	8.22	7.27	4.77
	12/26/97	4.80	9.34	4.54	2.73
	2/4/98	3.84	9.20	5.36	0.82
	2/11/98	3.42	9.27	5.85	0.49
	2/19/98	3.29	9.40	6.11	0.26
	3/25/98	4.24	9.24	5.00	1.11
	5/4/98	3.57	8.67	5.10	0.10
	5/7/98	2.39	8.88	6.49	1.39
	5/12/98	3.20	NM	NM	NM
	5/13/98	2.79	NM	NM	NM
WDI-VW-09	12/16/97	6.05	6.90	0.85	NM
	12/19/97	5.75	8.20	2.45	1.60
	12/26/97	6.00	6.72	0.72	1.73
	2/4/98	4.30	5.11	0.81	0.09
	2/11/98	4.32	5.09	0.77	0.04
	2/19/98	4.03	4.73	0.70	0.07
	3/25/98	3.60	4.40	0.80	0.10
	5/4/98	6.23	7.57	1.34	0.54
	5/7/98	3.81	4.86	1.05	0.29
	5/12/98	4.60	NM	NM	NM
	5/13/98	3.84	NM	NM	NM
WDI-EX-4	8/17/98	ND	12.65	NM	NM
	8/19/98	ND	17.58	NM	NM
WDI-NDP-1	8/17/98	ND	5.99	NM	NM
	8/19/98	ND	5.6	NM	NM
WDI-NDP-2	8/17/98	ND	4.81	NM	NM
	8/19/98	ND	4.8	NM	NM

ND = Not Detected
NM = Not Measured

TABLE 3.6

SUMMARY LIQUID LEVEL FIELD MONITORING PRIOR TO PUMP TEST WASTE DISPOSAL, INC. SUPERFUND SITE (Continued)

WELL I.D.	DATE	DEPTH TO FREE PHASE (ft)	DEPTH TO AQUEOUS PHASE (ft)	FREE PHASE THICKNESS (ft)	CHANGE IN FREE PHASE THICKNESS (ft)
WDI-NDP-3	8/17/98	4.29	NM	NM	NM
	8/19/98	4.21	NM	NM	NM
WDI-EX-6	8/19/98	4.88	9.06	4.18	NM
WDI-SDP-1	8/19/98	8.69	9.70	1.01	NM
	8/20/98	NM	22.0	NM	NM
WDI-SDP-2	8/19/98	8.81	9.28	0.47	NM
WDI-SDP-3	8/19/98	7.50	9.20	1.70	NM
	8/20/98	NM	20.9	NM	NM
WDI-SSP-1	8/19/98	ND	5.80	NM	NM
WDI-SSP-2	8/19/98	5.85	6.25	0.4	NM
WDI-SSP-3	8/19/98	ND	7.5	NM	NM

ND = Not Detected
NM = Not Measured

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TABLE 3.7

HYDRAULIC YIELD FOR PUMP TESTS AT EX-2, -4 AND -6 WASTE DISPOSAL, INC. SUPERFUND SITE

EX-2[1]				EX-4				EX-6			
Cycle No.	Recovery (feet)	Time (minutes)	Yield[2] (gpm)	Cycle No.	Recovery (feet)	Time (minutes)	Yield[2] (gpm)	Cycle No.	Recovery (feet)	Time (minutes)	Yield[2] (gpm)
Cycle 1	3.1	97	0.05	Cycle 1	5.04	6,889.8	0.0011	Cycle 1	4.629	130	0.052
Cycle 2	4.62	112	0.06	Cycle 2	4.84	13,840	0.0005	Cycle 2	4.449	160	0.041
Cycle 3	6.6	189	0.05					Cycle 3	5.49	260	0.031
Cycle 4	7.5	236	0.05					Cycle 4	5.213	280	0.027
Cycle 5	7.13	246	0.04					Cycle 5	5.201	320	0.024
Cycle 6	6.35	244	0.04					Cycle 6	5.333	360	0.022
Cycle 7	5.8	143	0.06					Cycle 7	6.61	460	0.021
								Cycle 8	6.233	580	0.016
								Cycle 9	6.257	740	0.012
								Cycle 10	6.647	1300	0.008
Average	--	--	0.05	Average	--	--	0.0008	Average	--	--	0.0232

94-256/Rpts/ReDeInSuRe/Tbls&Figs(new) (4/16/99/rmm)

(1) EX-2 results from Interim TM No. 6 July 1998.

(2) Yield = Recovery/Time (ft/min) x Volume (ft/gal)

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TABLE 3.8

SUMMARY OF CHEMISTRY DATA TM NOS. 6 AND 8 PUMP TEST FOR EX-2 ACTIVITIES WASTE DISPOSAL, INC. SUPERFUND SITE

- Volatile Organics (EPA Method 8260)
  - Low levels of typical petroleum VOCs were detected including benzene, toluene and ethylbenzene.
- Semivolatile Organics (EPA Method 8270)
  - Low levels of SVOCs including naphthalene and methylnaphthalene, and methylphenols were detected.
- PCBs/Pesticides (EPA Method 8080)
  - PCB levels (PCB-1248, -1254 and –1260) ranging from 0.0025 ppm to 14 ppm were detected.
  - Pesticides were not detected in the samples.
- Metals
  - Low levels of metals including arsenic, barium, cadmium, lead, mercury, nickel and thallium were detected.
- Oil and Grease (EPA Method 413.2)
  - Levels of oil and grease ranged from 93 to 45,000 mg/L.
  - EX-2 had the highest level at 45,000 mg/L, which may have been due to suspended oil in the water phase.
- Total Petroleum Hydrocarbons (EPA Method 418.1)
  - Levels were similar to oil and grease analysis, with EX-2 having the highest TPH of 44,000 mg/L.
- Simulated Distillation
  - Hydrocarbons were primarily found to be greater than 0.14 and were observed to be typical straight chain aliphatics.
- Microbial Analyses
  - Anaerobic and aerobic plate counts indicated relatively low levels of bacteria. All results were below 1 million units/mL which is considered low.
  - Bacteria found were identified as facultative anaerobic bacteria. Strict anaerobic bacteria were not identified.
- BTU Analyses
  - BTU levels were found to be consistent with the oil and grease/TPH analyses.
  - BTU levels from the oils indicate the materials may have fuel value if disposal is required.
- Sulfur Analyses
  - Low levels of sulfur were detected at levels less than 1 percent by weight.

TABLE 3.8A

SUMMARY OF CHEMISTRY DATA TM NO. 6 PUMP TEST ACTIVITIES FOR EX-4 AND EX-6 WASTE DISPOSAL, INC. SUPERFUND SITE

- Volatile Organics (EPA Method 8260)
  - Low levels of typical petroleum VOCs were detected including benzene, toluene, ethylbenzene, 4-methyl2-pentanone and vinyl chloride.
- Semivolatile Organics (EPA Method 8270)
  - Low levels of SVOCs including naphthalene and methylnaphthalene, methylphenols, phenanthrene, and phenol were detected.
- PCBs/Pesticides (EPA Method 8080)
  - PCB levels (PCB-1248, -1254 and –1260) ranging from 0.0016 ppm to 350 ppm were detected.
  - Pesticides were not detected in the samples.
- Metals
  - Low levels of metals including arsenic, barium, cadmium, lead, mercury, nickel and thallium were detected.
- Oil and Grease (EPA Method 413.2)
  - Levels of oil and grease ranged from 19 to 3,100 mg/L.
  - NDP-3 had the highest level at 3,100 mg/L, which may have been due to suspended oil in the water phase.
- Total Petroleum Hydrocarbons (EPA Method 418.1)
  - Levels were similar to oil and grease analysis, with NDP-3 having the highest TPH of 2,800 mg/L.
- Simulated Distillation
  - Hydrocarbons were primarily found to be greater than 0.14 and were observed to be typical straight chain aliphatics.
- Microbial Analyses
  - Anaerobic and aerobic plate counts indicated relatively low levels of bacteria. WD1-NDP-3 which had results of 2,400,000 anaerobic bacterial count and 2,900,000 plate count. All other results were below 1 million units/mL which is considered low.
  - Bacteria found were identified as facultative anaerobic bacteria. Strict anaerobic bacteria were not identified.
- BTU Analyses
  - BTU levels were found to be consistent with the oil and grease/TPH analyses.
  - BTU levels from the oils indicate the materials may have fuel value if disposal is required.
- Sulfur Analyses
  - Low levels of sulfur were detected at levels less than 1 percent by weight.

TABLE 3.9

SUMMARY OF TM NO. 6 DETECTED CHEMICAL DATA
EX-4 AND EX-6 PREPUMP TEST[1]
WASTE DISPOSAL, INC. SUPERFUND SITE

WELL NO. (Phase)	VOLATILE ORGANICS EPA METHOD 8260		SEMIVOLATILE ORGANICS EPA METHOD 8270		PESTICIDES/PCBs EPA METHOD 8081		METALS EPA METHOD[2]		OIL AND GREASE EPA METHOD 413.2 (mg/L)	TOTAL PETROLEUM HYDROCARBONS EPA METHOD 418.1 (mg/L)	SIMULATED DISTILLATION MODIFIED EPA 3550/8015	
	Constituent (mg/L)	8/14/98[3]	Constituent (mg/L)	8/14/98[3]	Constituent (mg/L)	8/14/98[3]	Constituent (mg/L)	8/14/98[3]	8/14/98[3]	8/14/98[3]	Carbon Range	%
EX-4 (aqueous phase)	Acetone	<0.025	2-Methyl Phenol	0.13	PCB-1248	<0.001	Arsenic	0.055	84	74	NA	NA
	Benzene	0.56	4-Methyl Phenol	0.33	PCB-1254	<0.001	Barium	<0.050				
	Chloroform	<0.005	Phenol	0.29	PCB-1260	<0.001	Cadmium	<0.025				
	2-Butanone	0.096	2-Methylnaphthalene	0.11	Pesticides	ND	Chromium	<0.025				
	Carbon Disulfide	<0.013	Naphthalene	0.22			Lead	<0.025				
	4-Methyl 2-Pentanone	0.11					Mercury	<0.0006				
	Toluene	0.44					Nickel	<0.050				
	Trichloroethene	0.0059					Thallium	0.048				
	Vinyl Chloride	0.24										
NSP-1 (aqueous phase)	Acetone	0.27	2-Methylnaphthalene	0.46	PCB-1248	<0.0012	Arsenic	0.098	200	130	NA	NA
	Benzene	0.44	Naphthalene	0.45	PCB-1254	<0.0012	Barium	1.0				
	2-Butanone	<0.05	Phenanthrene	0.12	PCB-1260	<0.0012	Cadmium	<0.025				
	Chloroform	<0.01	Pyrene	0.059	Pesticides	ND	Chromium	0.73				
	Ethylbenzene	0.14					Lead	1.3				
	4-Methyl 2-Pentanone	0.047					Mercury	<0.0006				
	Toluene	0.23					Nickel	<0.050				
	Trichloroethene	<0.01					Thallium	<0.025				
	Vinyl Chloride	0.054										
NSP-2 (aqueous phase)	Acetone	<0.025	2-Methylnaphthalene	0.055	PCB-1248	<0.001	Arsenic	<0.025	36	32	NA	NA
	Benzene	0.14	4-Methyl Phenol	0.029	PCB-1254	<0.001	Barium	0.10				
	2-Butanone	<0.025	Naphthalene	0.080	PCB-1260	<0.001	Cadmium	<0.025				
	Ethylbenzene	0.021	Phenol	0.037	Pesticides	ND	Chromium	<0.025				
	4-Methyl 2-Pentanone	0.084					Lead	0.029				
	Toluene	<0.013					Mercury	<0.0006				
	Trichloroethene	<0.005					Nickel	<0.050				
	Vinyl Chloride	0.045					Thallium	<0.025				
NSP-3 (aqueous phase)	Acetone	0.75	2-Methylnaphthalene	0.3	PCB-1248	0.012	Arsenic	0.033	190	150	NA	NA
	Benzene	0.46	4-Methyl Phenol	0.37	PCB-1254	<0.002	Barium	0.53				
	2-Butanone	0.28	Naphthalene	0.17	PCB-1260	<0.005	Cadmium	<0.025				
	trans-1,2-Dichloroethene	0.0061	Phenanthrene	0.055	Pesticides	ND	Chromium	<0.033				
	Ethylbenzene	0.097	Phenol	0.46			Lead	0.23				
	4-Methyl 2-Pentanone	0.16					Mercury	<0.0006				
	Tetrachloroethene	0.0067					Nickel	<0.050				
	Trichloroethene	0.019					Thallium	<0.025				
	Vinyl Chloride	0.42										
	Toluene	0.54										

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(2) Various EPA methods are used for the metals analysis.
(3) Prepump Test Analysis Results.
NA = Not Analyzed
ND = Not Detected

TRC

TABLE 3.9

SUMMARY OF TM NO. 6 DETECTED CHEMICAL DATA
EX-4 AND EX-6 PREPUMP TEST[1]
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

WELL NO. (Phase)	VOLATILE ORGANICS EPA METHOD 8260		SEMIVOLATILE ORGANICS EPA METHOD 8270		PESTICIDES/PCBs EPA METHOD 8081		METALS EPA METHOD[2]		OIL AND GREASE EPA METHOD 413.2 (mg/L)	TOTAL PETROLEUM HYDROCARBONS EPA METHOD 418.1 (mg/L)	SIMULATED DISTILLATION MODIFIED EPA 3550/8015	
	Constituent (mg/L)	8/14/98[3]	Constituent (mg/L)	8/14/98[3]	Constituent (mg/L)	8/14/98[3]	Constituent (mg/L)	8/14/98[3]	8/14/98[3]	8/14/98[3]	Carbon Range	%
NDP-1 (aqueous phase)	Acetone	0.19	2-Methylnaphthalene	0.09	PCB-1248	<0.001	Arsenic	<0.025	61	49	NA	NA
	Benzene	0.45	4-Methyl Phenol	0.068	PCB-1254	<0.001	Barium	0.061				
	Chloroform	<0.005	Naphthalene	0.23	PCB-1260	<0.001	Cadmium	<0.025				
	2-Butanone	0.033	Phenol	0.095	Pesticides	ND	Chromium	<0.025				
	Carbon Disulfide	<0.013					Lead	<0.025				
	Ethylbenzene	0.083					Mercury	<0.0006				
	4-Methyl 2-Pentanone	0.061					Nickel	<0.050				
	Toluene	0.16					Thallium	<0.025				
	Trichloroethene	<0.005										
	Vinyl Chloride	0.049										
NDP-2 (aqueous phase)	Acetone	0.66	2-Methylnaphthalene	0.11	PCB-1248	<0.001	Arsenic	0.12	85	70	NA	NA
	Benzene	0.64	4-Methyl Phenol	0.27	PCB-1254	<0.001	Barium	<0.05				
	2-Butanone	0.063	Naphthalene	0.28	PCB-1260	<0.001	Cadmium	<0.025				
	Chloroform	<0.005	Phenol	0.70	Pesticides	ND	Chromium	<0.025				
	Ethylbenzene	0.13					Lead	<0.025				
	4-Methyl 2-Pentanone	0.099					Mercury	<0.0006				
	Toluene	0.44					Nickel	<0.05				
	Trichloroethene	<0.005					Thallium	<0.025				
	Vinyl Chloride	0.16										
NDP-3 (aqueous phase)	Acetone	0.31	2-Methylnaphthalene	0.38	PCB-1248	0.68	Arsenic	<0.025	3,100	2,800	NA	NA
	Benzene	0.48	2-Methyl Phenol	0.05	PCB-1254	<0.13	Barium	0.089				
	2-Butanone	0.14	4-Methyl Phenol	0.40	PCB-1260	2.1	Cadmium	<0.025				
	4-Methyl 2-Pentanone	0.14	Naphthalene	0.22	Pesticides	ND	Chromium	<0.025				
	Toluene	0.49	Phenanthrene	0.07			Lead	0.067				
	Trichloroethene	0.44	Phenol	0.29			Mercury	<0.0006				
	Vinyl Chloride	0.008					Nickel	<0.05				
	trans-1,2-Dichloroethene	0.0078					Thallium	<0.025				
NDP-3 (free product)	Benzene	<100	2-Methylnaphthalene	110	PCB-1248	0.084	Arsenic	2.2			C8 - C13	20
	Ethylbenzene	180	Naphthalene	310	PCB-1254	<0.05	Barium	99			C14 - C19	28.7
	Toluene	360	Phenanthrene	76	PCB-1260	0.29	Cadmium	<0.5			C20 - C27	25.4
					Pesticides	ND	Chromium	23			C28 - C40	25.7
							Lead	49				
							Mercury	<0.020				
							Nickel	14				
							Thallium	<10				

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(2) Various EPA methods are used for the metals analysis.
(3) Prepump Test Analysis Results.
NA = Not Analyzed
ND = Not Detected

TRC

TABLE 3.9

SUMMARY OF TM NO. 6 DETECTED CHEMICAL DATA[1]
EX-4 AND EX-6 PREPUMP TEST
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

WELL NO. (Phase)	VOLATILE ORGANICS EPA METHOD 8260		SEMIVOLATILE ORGANICS EPA METHOD 8270		PESTICIDES/PCBs EPA METHOD 8081		METALS EPA METHOD[2]		OIL AND GREASE EPA METHOD 413.2 (mg/L)	TOTAL PETROLEUM HYDROCARBONS EPA METHOD 418.1 (mg/L)	SIMULATED DISTILLATION MODIFIED EPA 3550/8015	
	Constituent (mg/L)	8/20/98[3]	Constituent (mg/L)	8/20/98[3]	Constituent (mg/L)	8/20/98[3]	Constituent (mg/L)	8/20/98[3]	8/20/98[3]	8/20/98[3]	Carbon Range	%
EX-6 (aqueous phase)	Acetone	0.74	Anthracene	0.67	PCB-1248	0.31	Arsenic	0.0076	1,900	1,800	NA	NA
	Benzene	0.69	2-Methylnaphthalene	2.1	PCB-1254	<0.05	Barium	0.034				
	2-Butanone	2.4	2-Methyl Phenol	0.67	PCB-1260	0.33	Cadmium	<0.005				
	Ethylbenzene	0.36	4-Methyl Phenol	6.6	Pesticides	ND	Chromium	<0.005				
	4-Methyl 2-Pentanone	2.0	Naphthalene	0.7			Lead	<0.005				
	Tetrachloroethene	0.21	Phenanthrene	0.58			Mercury	<0.0002				
	Toluene	0.47	Phenol	3.8			Nickel	0.029				
	Trichloroethene	0.16					Thallium	<0.005				
	Vinyl Chloride	0.59										
SDP-3 (aqueous phase)	Benzene	1.1	2-Methylnaphthalene	1.6	PCB-1248	<0.0091	Arsenic	NA	2,400	2,300	NA	NA
	2-Butanone	<0.05	2-Methyl Phenol	2.0	PCB-1254	<0.001	Barium	NA				
	Ethylbenzene	0.22	4-Methylphenol	3.5	PCB-1260	0.0016	Cadmium	NA				
	4-Methyl 2-Pentanone	0.15	Naphthalene	1.0	Pesticides	ND	Chromium	NA				
	Toluene	1.1	Phenol	2.9			Lead	NA				
	Trichloroethene	<0.01					Mercury	NA				
	Vinyl Chloride	0.036					Nickel	NA				
							Thallium	NA				
SDP-2 (aqueous phase)	Benzene	0.21	2-Methylnaphthalene	0.34	PCB-1248	0.031	Arsenic	0.0069	1,200	1,100	NA	NA
	2-Butanone	0.11			PCB-1254	<0.005	Barium	0.074				
	Ethylbenzene	0.063			PCB-1260	0.035	Cadmium	<0.005				
	4-Methyl 2-Pentanone	0.062			Pesticides	ND	Chromium	<0.005				
	Toluene	0.36					Lead	<0.005				
	Vinyl Chloride	0.12					Mercury	<0.0002				
	Trichloroethene	0.05					Nickel	<0.010				
	Tetrachloroethene	0.018					Thallium	0.0057				
SSP-1 (aqueous phase)	Acetone	0.4	2-Methylnaphthalene	0.74	PCB-1248	0.032	Arsenic	<0.005	400	380	NA	NA
	Benzene	0.44	Naphthalene	0.32	PCB-1254	<0.01	Barium	0.13				
	Ethylbenzene	0.049			PCB-1260	0.082	Cadmium	<0.005				
	4-Methyl 2-Pentanone	<0.013			Pesticides	ND	Chromium	0.0057				
	Toluene	0.22					Lead	0.018				
	Trichloroethene	<0.005					Mercury	<0.0002				
	Vinyl Chloride	0.071					Nickel	<0.01				
							Thallium	<0.005				

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(2) Various EPA methods are used for the metals analysis.
(3) Prepump Test Analysis Results.
NA = Not Analyzed
ND = Not Detected

TRC

TABLE 3.9

SUMMARY OF TM NO. 6 DETECTED CHEMICAL DATA
EX-4 AND EX-6 PREPUMP TEST[1]
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

WELL NO. (Phase)	VOLATILE ORGANICS EPA METHOD 8260		SEMIVOLATILE ORGANICS EPA METHOD 8270		PESTICIDES/PCBs EPA METHOD 8081		METALS EPA METHOD[2]		OIL AND GREASE EPA METHOD 413.2 (mg/L)	TOTAL PETROLEUM HYDROCARBONS EPA METHOD 418.1 (mg/L)	SIMULATED DISTILLATION MODIFIED EPA 3550/8015	
	Constituent (mg/L)	8/20/98[3]	Constituent (mg/L)	8/20/98[3]	Constituent (mg/L)	8/20/98[3]	Constituent (mg/L)	8/20/98[3]	8/20/98[3]	8/20/98[3]	Carbon Range	%
SSP-2 (aqueous phase)	Acetone	0.20	2-Methylnaphthalene	0.94	PCB-1248	0.047	Arsenic	0.011	140	130	NA	NA
	Benzene	0.21			PCB-1254	<0.02	Barium	0.031				
	Ethylbenzene	0.23			PCB-1260	0.042	Cadmium	<0.005				
	4-Methyl 2-Pentanone	<0.013			Pesticides	ND	Chromium	0.016				
	Toluene	0.0084					Lead	0.027				
	Trichloroethene	<0.005					Mercury	<0.002				
	Vinyl Chloride	0.039					Nickel	<0.01				
							Thallium	<0.005				
SSP-3 (aqueous phase)	Acetone	0.8	4-Methyl Phenol	0.086	PCB-1248	<0.001	Arsenic	<0.005	19	17	NA	NA
	Benzene	0.33	Phenol	0.15	PCB-1254	<0.001	Barium	0.26				
	2-Butanone	0.42			PCB-1260	<0.001	Cadmium	<0.005				
	Ethylbenzene	0.051			Pesticides	ND	Chromium	0.0096				
	Tetrachloroethene	0.0063					Lead	0.013				
	4-Methyl 2-Pentanone	0.23					Mercury	<0.0002				
	Toluene	0.45					Nickel	<0.01				
	Vinyl Chloride	0.23					Thallium	<0.005				
	Trichloroethane	0.033										
EX-6 (free product)	Benzene	<100	2-Methylnaphthalene	1,600	PCB-1248	170	Arsenic	2.9	NA	NA	C8 - C13	24.7
	Ethylbenzene	590			PCB-1254	<130	Barium	39			C14 - C19	38.9
	Toluene	140			PCB-1260	170	Cadmium	<0.5			C20 - C27	26.0
					Pesticides	ND	Chromium	56			C28 - C40	10.0
							Lead	12				
							Mercury	<0.02				
							Nickel	23				
							Thallium	<10				
SDP-3 (free product)	Benzene	240	2-Methylnaphthalene	1,600	PCB-1248	<5.0	Arsenic	<2.0	NA	NA	C8 - C13	34.8
	Ethylbenzene	<100	Naphthalene	860	PCB-1254	<5.0	Barium	28			C14 - C19	34.0
	Toluene	1,400			PCB-1260	5.6	Cadmium	<0.5			C20 - C27	23.0
					Pesticides	ND	Chromium	<1.0			C28 - C40	8.83
							Lead	<2.0				
							Mercury	<0.02				
							Nickel	15				
							Thallium	<10				

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(2) Various EPA methods are used for the metals analysis.
(3) Prepump Test Analysis Results.
NA = Not Analyzed
ND = Not Detected

TRC

TABLE 3.9

SUMMARY OF TM NO. 6 DETECTED CHEMICAL DATA
EX-4 AND EX-6 PREPUMP TEST[1]
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

WELL NO. (Phase)	VOLATILE ORGANICS EPA METHOD 8260		SEMIVOLATILE ORGANICS EPA METHOD 8270		PESTICIDES/PCBs EPA METHOD 8081		METALS EPA METHOD[2]		OIL AND GREASE EPA METHOD 413.2 (mg/L)	TOTAL PETROLEUM HYDROCARBONS EPA METHOD 418.1 (mg/L)	SIMULATED DISTILLATION MODIFIED EPA 3550/8015	
	Constituent (mg/L)	8/20/98[3]	Constituent (mg/L)	8/20/98[3]	Constituent (mg/L)	8/20/98[3]	Constituent (mg/L)	8/20/98[3]	8/20/98[3]	8/20/98[3]	Carbon Range	%
SDP-1 (free product)	Benzene	130	2-Methylnaphthalene	910	PCB-1248	100	Arsenic	<2.0	NA	NA	C8 - C13	25.5
	Ethylbenzene	<100			PCB-1254	<100	Barium	18			C14 - C19	26.6
	Tetrachloroethene	200			PCB-1260	350	Cadmium	<0.5			C20 - C27	26.8
	Toluene	1,800			Pesticides	ND	Chromium	18			C28 - C40	11.11
							Lead	10				
							Mercury	<0.02				
							Nickel	14				
							Thallium	<10				

94-256/Rpts/ReDefnSuRe/Tbls&Figs (new) (4/16/99/rm)

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(2) Various EPA methods are used for the metals analysis.
(3) Prepump Test Analysis Results.
NA = Not Analyzed
ND = Not Detected

TRC

TABLE 3.10

LIQUIDS LEVELS IN EPA PIEZOMETERS
TM NO. 12 ACTIVITIES
WASTE DISPOSAL, INC. SUPERFUND SITE

WELL ID	DATE MONITORED	LIQUID LEVEL BEFORE PURGE		LIQUID LEVEL AFTER PURGE[1]		FINAL CHANGE IN LIQUID LEVEL		CHANGE IN WATER LEVEL	RECOVERY	INITIAL PRODUCT THICKNESS	FINAL PRODUCT THICKNESS
		PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft.)	WATER (ft.)	(feet)	(%)	(feet)	(feet)
A-4(S)	10/1/98	ND	4.98	ND	3.90			+1.08	121.7	ND	ND
	10/1/98			ND	3.58			+1.40	128.1		
	10/2/98			ND	3.55	ND	+1.43	+1.43	128.7		
A-4 (D)	10/1/98	5.18	15.10	ND	13.85			+1.25	108.3	9.92	0.23
	10/1/98			ND	7.82			+7.28	148.2		
	10/2/98			2.17	2.40	+3.01	+12.70	+12.70	184.1		
A-5	10/1/98	ND	5.30	ND	15.76			-10.46	NA	ND	ND
	10/1/98			ND	8.86			-3.56	32.8		
	10/2/98			ND	5.33	ND	-0.03	-0.03	99.4		
A-6	10/1/98	5.23	5.90	5.54	6.57			-0.67	NA	0.67	NA
	10/1/98			NM	5.32			+0.58	109.8		
	10/2/98			5.14	NM	+0.09	+0.58	NA	NA		
B-4	10/1/98	ND	4.42	ND	10.95			-6.53	NA	ND	ND
	10/1/98			ND	9.48			-5.06	13.4		
	10/2/98			4.94	ND	+4.94	-5.06	ND	NA		
B-5	10/1/98	4.10	4.85	4.7	NM			NA	NA	0.75	0.0
	10/2/98			ND	4.12	-4.10	+0.73	+0.73	115.1		
B-6	10/1/98	4.38	4.64	13.56	14.45			-9.81	NA	0.26	NA
	10/1/98			5.40	6.18			-1.54	66.8		
	10/2/98			3.96	NM	+0.42	-1.54	NA	NA		
B-7	10/1/98	3.87	4.18	7.80	8.02			-3.84	NA	0.31	NA
	10/1/98			NM	6.49			-2.31	44.7		
	10/2/98			4.45	NM	-0.58	-2.31	NA	NA		
B-8	10/1/98	ND	3.40	ND	14.01			-10.61	NA	ND	ND
	10/1/98			ND	13.15			-9.75	6.1		
	10/2/98			ND	9.16	ND	-5.76	-5.76	34.6		
C-3	10/2/98	4.09	4.12	ND	11.00			-6.88	NA	-0.03	ND
	10/2/98			ND	5.05			-0.93	77.4		
	10/5/98			ND	4.30	-4.09	-0.18	-0.18	95.6		
C-4	10/2/98	ND	4.60	ND	4.77			-0.17	NA	ND	ND
	10/2/98			ND	4.60			0.00	100.0		
	10/5/98			ND	4.60	ND	0.00	0.00	100.0		
C-5	10/5/98	ND	3.90	ND	6.62			-2.72	NA	ND	ND
	10/5/98			ND	4.57			-0.67	82.8		
	10/6/98			ND	4.24	ND	-0.34	-0.34	91.3		
C-8	10/1/98	ND	3.42	ND	4.80			-1.38	NA	ND	ND
	10/2/98			ND	3.75	ND	-0.33	-0.33	90.4		

(1)Initial Reading, 1-Hr Reading, 24-Hr Reading

Note: Some of the levels collected after the one-hour readings exceeded 24-hours. Refer to date monitored.

NA = Not applicable
ND = Not detected
NM = Not measured
Ft. bgs = Feet below ground surface

S = Shallow
D = Deep
\+ = Greater than initial (prepurge) reading
\- = Less than initial (prepurge) reading

TRC

TABLE 3.10

LIQUIDS LEVELS IN EPA PIEZOMETERS
TM NO. 12 ACTIVITIES
WASTE DISPOSAL, INC. SUPERFUND SITE

(Continued)

WELL ID	DATE MONITORED	LIQUID LEVEL BEFORE PURGE		LIQUID LEVEL AFTER PURGE[1]		FINAL CHANGE IN LIQUID LEVEL		CHANGE IN WATER LEVEL	RECOVERY	INITIAL PRODUCT THICKNESS	FINAL PRODUCT THICKNESS
		PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft.)	WATER (ft.)	(feet)	(%)	(feet)	(feet)
C-9 (S)	10/1/98	ND	DRY	NM	NM	NM	NM	NA	NA	NA	NA
C-9 (D)	10/1/98	3.39	NM	NM	NM	NM	NM	NA	NA	NA	NA
D-3 (S)	10/2/98	ND	3.55	ND	5.47			-1.92	NA	ND	ND
	10/2/98			ND	4.94			-1.39	60.8		
	10/5/98			ND	3.60	ND	-0.05	-0.05	98.6		
D-3 (D)	10/2/98	3.45	3.51	ND	3.57			-0.06	NA	0.06	0.02
	10/2/98			ND	3.53			-0.02	99.4		
	10/5/98			3.58	3.60	-0.13	-0.09	-0.09	97.4		
D-4	10/2/98	4.15	4.25	ND	14.70			-10.45	NA	0.10	0.02
	10/2/98			ND	8.79			-4.54	40.2		
	10/5/98			4.13	4.15	+0.02	+0.10	+0.10	102.4		
D-5	10/2/98	5.02	5.07	ND	6.02			-0.95	NA	0.05	ND
	10/2/98			ND	5.10			-0.03	99.4		
	10/5/98			ND	5.12	-5.02	-0.05	-0.05	99.0		
D-6 (S)	10/2/98	ND	5.00	ND	5.35			-0.35	NA	ND	ND
	10/2/98			ND	5.09			-0.09	98.2		
	10/5/98			ND	4.90	ND	+0.10	+0.10	102.0		
D-6 (D)	10/2/98	4.67	5.58	NM	12.02			-6.44	NA	0.91	ND
	10/2/98			NM	5.98			-0.40	92.8		
	10/5/98			ND	4.98	-4.67	+0.60	+0.60	110.8		
D-7	10/1/98	3.15	4.40	NM	13.65			-9.25	NA	1.25	NA
	10/2/98			3.08	NM	+0.07	-9.25	NA	NA		
D-8	10/1/98	ND	4.12	ND	17.95			-13.83	NA	ND	ND
	10/2/98			ND	5.81	ND	-1.69	-1.69	59.0		
D-9	10/1/98	3.95	5.85	NM	NM			NA	NA	1.90	NA
	10/2/98			4.00	NM	-0.05	NM	NA	NA		
E-1	10/5/98	4.00	4.50	ND	17.00			-12.5	NA	0.50	ND
	10/5/98			ND	13.75			-9.25	19.1		
	10/6/98			ND	7.20	-4.00	-2.70	-2.7	40.0		
E-2	10/5/98	2.97	3.00	6.50	6.55			-3.55	NA	0.03	0.09
	10/5/98			NM	6.00			-3.00	8.4		
	10/6/98			4.80	4.89	-1.83	-1.89	-1.89	37.0		
E-3	10/2/98	ND	3.40	ND	17.14			-13.74	NA	ND	ND
	10/2/98			ND	13.20			-9.80	23.0		
	10/5/98			ND	3.80	ND	-0.40	-0.40	88.2		
E-4	10/2/98	2.91	3.08	ND	13.79			-10.71	NA	0.17	ND
	10/2/98			ND	5.10			-2.02	34.4		
	10/5/98			ND	3.08	-2.91	0.00	0.0	100.0		

(1) Initial Reading, 1-Hr Reading, 24-Hr Reading

Note: Some of the levels collected after the one-hour readings exceeded 24-hours. Refer to date monitored.

NA = Not applicable
ND = Not detected
NM = Not measured
Ft. bgs = Feet below ground surface

S = Shallow
D = Deep
\+ = Greater than initial (prepurge) reading
\- = Less than initial (prepurge) reading

TRC

TABLE 3.10

LIQUIDS LEVELS IN EPA PIEZOMETERS
TM NO. 12 ACTIVITIES
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

WELL ID	DATE MONITORED	LIQUID LEVEL BEFORE PURGE		LIQUID LEVEL AFTER PURGE(1)		FINAL CHANGE IN LIQUID LEVEL		CHANGE IN WATER LEVEL	RECOVERY	INITIAL PRODUCT THICKNESS	FINAL PRODUCT THICKNESS
		PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft.)	WATER (ft.)	(feet)	(%)	(feet)	(feet)
E-5	10/2/98	2.40	5.15	NM	6.10			-0.95	NA	2.75	2.22
	10/2/98			4.29	5.40			-0.25	95.1		
	10/5/98			2.96	5.18	-0.56	-0.03	-0.03	99.4		
E-6	10/2/98	3.05	4.19	18.10	18.17			-13.98	NA	1.14	0.15
	10/2/98			NM	6.26			-2.07	50.6		
	10/5/98			3.33	3.48	-0.28	+0.71	+0.71	116.9		
E-7	10/1/98	2.59	6.20	NM	NM			NA	NA	3.61	NA
	10/2/98			3.08	NM	-0.49	NM	NA	NA		
E-8	10/1/98	3.15	5.50	11.03	NM			NA	NA	2.35	NA
	10/2/98			4.21	NM	-1.06	NM	NA	NA		
E-9	10/1/98	3.86	8.15	NM	NM			NA	NA	4.29	NA
	10/2/98			3.90	NM	-0.04	NM	NA	NA		
F-1	10/5/98	3.05	4.55	NM	6.50			-1.95	NA	1.5	1.6
	10/5/98			3.90	5.50			-0.95	79.1		
	10/6/98			3.50	5.10	0.00	-0.55	-0.55	87.9		
F-2	10/5/98	3.35	10.92	NM	16.77			-5.85	NA	7.57	3.91
	10/5/98			7.00	12.90			-1.98	81.9		
	10/6/98			3.75	7.66	0.40	+3.26	+3.26	129.9		
F-3	10/5/98	4.00	4.22	NM	6.74			-2.52	NA	0.22	0.88
	10/5/98			NM	5.60			-1.38	67.3		
	10/6/98			4.00	4.88	0.00	-0.66	-0.66	84.4		
F-4	10/5/98	3.36	4.20	6.61	7.31			-3.11	NA	0.84	0.87
	10/5/98			3.90	5.63			-1.43	65.9		
	10/6/98			3.58	4.45	-0.22	-0.25	-0.25	94.0		
F-6	10/2/98	3.14	5.30	14.06	14.95			-9.65	NA	2.16	0.13
	10/2/98			NM	8.95			-3.65	31.1		
	10/5/98			5.00	5.13	-1.86	+0.17	+0.17	103.2		
F-7 (S)	10/2/98	ND	5.00	ND	DRY			NA	NA	NA	NA
	10/2/98			ND	5.70			-0.70	86.0		
	10/5/98			ND	5.65	ND	-0.65	-0.65	87.0		
F-7 (D)	10/2/98	1.80	10.12	3.80	NM			NA	NA	8.32	6.26
	10/2/98			5.30	9.70			+0.42	104.2		
	10/5/98			3.82	10.08	-2.02	+0.04	+0.04	100.4		
F-8	10/2/98	3.67	4.01	NM	8.46			-4.45	NA	0.34	0.20
	10/2/98			7.70	7.76			-3.75	6.5		
	10/5/98			4.10	4.30	-0.43	-0.29	-0.29	92.8		

(1) Initial Reading, 1-Hr Reading, 24-Hr Reading

Note: Some of the levels collected after the one-hour readings exceeded 24-hours. Refer to date monitored.

NA = Not applicable
ND = Not detected
NM = Not measured
Ft. bgs = Feet below ground surface

S = Shallow
D = Deep
\+ = Greater than initial (prepurge) reading
\- = Less than initial (prepurge) reading

TRC

TABLE 3.10

LIQUIDS LEVELS IN EPA PIEZOMETERS
TM NO. 12 ACTIVITIES
WASTE DISPOSAL, INC. SUPERFUND SITE

(Continued)

WELL ID	DATE MONITORED	LIQUID LEVEL BEFORE PURGE		LIQUID LEVEL AFTER PURGE(1)		FINAL CHANGE IN LIQUID LEVEL		CHANGE IN WATER LEVEL	RECOVERY	INITIAL PRODUCT THICKNESS	FINAL PRODUCT THICKNESS
		PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft.)	WATER (ft.)	(feet)	(%)	(feet)	(feet)
F-9	10/2/98	2.79	6.80	6.95	NM			NA	NA	4.01	2.04
	10/2/98			4.28	6.04			+0.76	111.8		
	10/5/98			2.85	4.89	-0.06	+1.91	+1.91	128.1		
G-1	10/5/98	3.00	9.45	NM	12.85			-3.40	NA	6.45	4.35
	10/5/98			4.15	12.35			-2.90	69.3		
	10/6/98			3.10	7.45	-0.10	+2.00	+2.00	121.3		
G-2	10/5/98	3.65	7.77	6.75	16.00			-8.23	NA	4.12	3.42
	10/5/98			4.29	6.56			+1.21	115.5		
	10/6/98			3.92	7.34	-0.27	+0.43	+0.43	105.5		
G-3	10/5/98	4.10	7.95	5.60	15.00			-7.05	NA	3.85	3.5
	10/5/98			4.36	5.85			+2.10	126.4		
	10/6/98			4.05	7.55	+0.05	+0.40	+0.40	105.0		
G-4	10/5/98	3.65	9.70	4.00	8.38			+1.32	113.6	6.05	4.72
	10/5/98			4.10	7.88			+1.82	118.8		
	10/6/98			3.78	8.50	-0.13	+1.20	+1.20	112.4		
G-5	10/5/98	4.60	7.00	7.12	17.30			-10.30	NA	2.40	0.85
	10/5/98			7.70	7.85			-0.85	87.9		
	10/6/98			5.00	5.85	-0.40	+1.15	+1.15	116.4		
G-6	10/2/98	3.10	13.56	5.98	10.75			+2.81	120.7	10.46	11.02
	10/2/98			3.30	14.88			-1.32	90.3		
	10/5/98			2.84	13.86	+0.26	-0.30	-0.30	97.8		
G-7	10/2/98	1.40	7.30	9.25	11.00			-3.70	NA	5.90	1.06
	10/2/98			4.65	4.74			+2.56	135.1		
	10/5/98			4.10	5.16	-2.70	+2.14	+2.14	129.3		
G-8	10/2/98	2.34	3.84	3.75	NM			NA	NA	1.50	0.05
	10/2/98			3.70	3.78			+0.06	135.1		
	10/5/98			3.70	3.75	-1.36	+0.09	+0.09	129.3		
G-9 (S)	10/2/98	ND	3.96	ND	2.35			+1.61	NA	ND	ND
	10/2/98			ND	3.18			+0.78	101.6		
	10/5/98			ND	3.17	ND	+0.79	+0.79	102.3		
G-9 (D)	10/2/98	ND	2.95	ND	3.20			-0.25	140.7	ND	ND
	10/2/98			ND	2.90			+0.05	119.7		
	10/5/98			ND	2.93	ND	+0.02	+0.02	119.9		
H-2	10/5/98	5.15	8.10	NM	11.10			-3.00	NA	2.95	1.52
	10/5/98			5.45	6.65			+1.45	117.9		
	10/6/98			5.26	6.78	-0.11	+1.32	+1.32	116.3		

(1) Initial Reading, 1-Hr Reading, 24-Hr Reading

Note: Some of the levels collected after the one-hour readings exceeded 24-hours. Refer to date monitored.

NA = Not applicable
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Ft. bgs = Feet below ground surface

S = Shallow
D = Deep
\+ = Greater than initial (prepurge) reading
\- = Less than initial (prepurge) reading

TRC

TABLE 3.10

LIQUIDS LEVELS IN EPA PIEZOMETERS
TM NO. 12 ACTIVITIES
WASTE DISPOSAL, INC. SUPERFUND SITE

(Continued)

WELL ID	DATE MONITORED	LIQUID LEVEL BEFORE PURGE		LIQUID LEVEL AFTER PURGE[1]		FINAL CHANGE IN LIQUID LEVEL		CHANGE IN WATER LEVEL	RECOVERY	INITIAL PRODUCT THICKNESS	FINAL PRODUCT THICKNESS
		PRODUCT (ft bgs.)	WATER (ft. bgs)	PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft.)	WATER (ft.)	(feet)	(%)	(feet)	(feet)
H-3 (S)	10/5/98	ND	5.15	ND	5.15			0.00	100.0	ND	ND
	10/5/98			ND	5.25			-0.10	98.1		
	10/6/98			ND	5.26	ND	-0.11	-0.11	97.9		
H-3 (D)	10/5/98	5.06	5.07	5.06	5.07			0.00	100.0	0.01	0.10
	10/5/98			5.10	5.15			-0.08	98.4		
	10/6/98			5.10	5.20	-0.04	-0.13	-0.13	97.4		
H-4	10/5/98	3.40	9.87	13.00	17.36			-7.49	NA	6.47	5.2
	10/5/98			6.13	9.20			+0.67	106.8		
	10/6/98			4.00	9.20	-0.60	+0.67	+0.67	106.8		
H-5	10/5/98	4.60	5.65	6.90	10.12			-4.47	NA	1.05	1.11
	10/5/98			4.65	4.70			+0.95	116.8		
	10/6/98			4.47	5.58	+0.13	+0.07	+0.07	101.2		
H-6	10/2/98	4.19	5.00	NM	12.30			-7.30	NA	0.81	0.08
	10/2/98			6.30	6.40			-1.40	72.0		
	10/5/98			4.32	4.40	-0.13	+0.60	+0.60	112.0		
H-7	10/2/98	4.92	5.55	NM	10.50			-4.95	NA	0.63	0.15
	10/2/98			4.98	8.50			-2.95	46.8		
	10/5/98			5.00	5.15	-0.08	+0.40	+0.40	107.2		
H-8	10/2/98	ND	4.65	ND	14.10			-9.45	NA	ND	ND
	10/2/98			ND	4.68			-0.03	99.4		
	10/5/98			ND	4.65	ND	0.00	0.00	100.00		
I-4	10/5/98	5.05	6.52	NM	6.70			-0.18	NA	1.47	1.43
	10/5/98			5.15	6.35			+0.17	102.6		
	10/6/98			5.17	6.60	-0.08	-0.08	-0.08	98.8		
I-5	10/5/98	3.05	4.80	NM	7.45			-2.65	NA	1.75	3.00
	10/5/98			3.60	7.00			-2.20	54.2		
	10/6/98			3.00	6.00	+0.05	-1.20	-1.20	75.0		
I-6	10/2/98	3.65	4.25	NM	3.70			+0.55	112.9	0.60	0.21
	10/2/98			3.69	3.76			+0.49	111.5		
	10/5/98			3.74	3.95	-0.09	+0.30	+0.30	107.1		
I-7	10/2/98	ND	4.12	ND	4.20			-0.08	NA	ND	ND
	10/2/98			ND	4.10			+0.02	100.5		
	10/5/98			ND	4.15	ND	-0.03	-0.03	99.3		

(1) Initial Reading, 1-Hr Reading, 24-Hr Reading

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TRC

TABLE 3.11

VAPOR WELL ANALYTICAL DATA FOR FEBRUARY 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																										
		WDI-VAPOR WELL - PROBE DEPTH (feet)																										
		01-35	02-35	03-35	04-23	05-29	06-34	08-35	10-35	11-35	12-34	13-31	14-35	16-34	17-35	18-36	20-35	21-36	22-35	23-36	24-35	25-35	26-35	27-09	27-19	27-35	28-10	28-25
Nonmethane Organics as methane/ppm		100	1,200	130	13,000	91	390	100	160	170	62	200	550	32	53	11,000	80	110	75	170	91	12,000	63	(2)	6.0	95	(2)	(2)
Methane/ppm	12,500	**0.92**	**33,000**	**14,000**	**130,000**	12,000	**53,000**	8,600	5,600	**18,000**	1.2	**13,000**	7,200	<0.50	<0.50	9.6	<0.50	4.6	0.84	4,200	<0.50	**507,000**	0.89		1.8	<0.50		
Vinyl chloride	25	<1.6	<3.9	<3.9	<390	<1.6	**55**	4.6	**150**	7.1	<0.39	**29**	**370**	<1.6	<2.0	<390	<1.6	<2.0	<7.8	**35**	<0.39	<200	<0.39		<1.6	<1.6		
Chloroethane	75,200	<1.5	<3.8	<3.8	<380	<1.5	<15	<1.5	<1.5	<1.9	<0.38	<3.8	24	<1.5	<1.9	<380	<1.5	<1.9	<7.6	<0.38	<0.38	<190	<0.38		<1.5	<1.5		
Acetone	31,200	<1.7	<4.2	33	<420	<1.7	<17	1.1[1]	<1.7	<2.1	9.9	<4.2	<17	2.4	8.3	<420	5.5	<2.1	<8.4	100	3.2	<210	2.2		40	9.5		
trans-1,2-Dichloroethene	3,680	<1.0	<2.5	<2.5	<250	<1.0	<10	<1.0	<1.0	<1.3	<0.25	8.7	<10	<1.0	<1.3	<250	<1.0	<1.3	<5.0	45	<0.25	<130	0.97		<1.0	<1.0		
1,1-Dichloroethane	25,600	<0.99	<2.5	<2.5	<250	<0.99	<9.9	<0.99	75	1.1[1]	<0.25	<2.5	95	0.92[1]	<1.2	<250	<0.99	<1.2	<4.9	20	<0.25	<120	3.3		<0.99	<0.99		
cis-1,2-Dichloroethene	1,860	<1.0	<2.5	<2.5	460	0.85[1]	<10	<1.0	83	2.0	<0.25	50	41	<1.0	<1.3	<250	<1.0	1.4	<5.0	130	<0.25	<130	110		<1.0	<1.0		
Chloroform	340	<0.82	<2.0	<2.0	<200	<0.82	<8.2	<0.82	<0.82	<1.0	<0.20	<2.0	<8.2	1.2	<1.0	<210	<0.82	1.8	5.0	1.2	0.42	<100	0.86		<0.82	<0.82		
1,2-Dichloroethane	360	<0.99	<2.5	<2.5	<250	<0.99	<9.9	<0.99	<0.99	<1.2	<0.25	<2.5	22	<0.99	<1.2	<250	<0.99	<1.2	<4.9	<0.25	<0.25	<120	<0.25		<0.99	<0.99		
1,1,1-Trichloroethane	36,800	<0.73	<1.8	<1.8	<180	<0.73	<7.3	<0.73	<0.73	<0.93	<0.18	<1.8	<7.3	6.2	240	<190	<0.73	1.7	7.6	0.91	0.17[1]	<92	0.89		21	<0.73		
Benzene	200	<1.3	<3.1	15	830	<1.3	<13	0.79[1]	0.98[1]	1.5[1]	<0.31	2.6[1]	37	<1.3	6.6	**1,600**	<1.3	<1.6	<6.3	1.1	0.39	**220**	<0.31		1.0[1]	<1.3		
Carbon Tetrachloride	68	<0.64	<1.6	<1.6	<160	<0.64	<6.4	<0.64	<0.64	<0.80	<0.16	<1.6	<6.4	<0.64	<0.80	<160	<0.64	<0.80	<3.2	<0.16	<0.16	<80	<0.16		<0.64	<0.64		
1,2-Dichloropropane	186	<0.87	<2.2	<2.2	<220	<0.87	<8.7	<0.87	<0.87	<1.1	<0.22	<2.2	140	<0.87	<1.1	<220	<0.87	<1.1	<4.3	<0.22	<0.22	<110	<0.22		<0.87	<0.87		
Trichloroethene	822	<0.74	<1.9	<1.9	<190	2.6	<7.4	<0.74	<0.74	8.0	1.3	62	11	91	14	<190	3.9	420	**1400**	**910**	6.6	<93	83		<0.74	<0.74		
1,1,2-Trichloroethane	440	<0.73	<1.8	<1.8	<180	<0.73	<7.3	<0.73	<0.73	<0.93	<0.18	<1.8	<7.3	<0.73	<0.93	<190	<0.73	<0.93	<3.7	<0.18	<0.18	<92	<0.18		<0.73	<0.73		
Toluene	21,200	0.91[1]	<2.7	5.0	<270	<1.1	<11	0.92[1]	1.3	1.3	1.6	<2.7	13	1.1	33	530	1.3	1.1[1]	<5.3	1.2	1.4	4,700	0.56		4.3	2.3		
1,2-Dibromoethane	6	<0.52	<1.3	<1.3	<130	<0.52	<5.2	<0.52	<0.52	<0.66	<0.13	<1.3	<5.2	<0.52	<0.66	<130	<0.52	<0.66	<2.6	<0.13	<0.13	<65	<0.13		<0.52	<0.52		
Tetrachloroethene	1,064	7.8	<1.5	7.7	<150	17	<5.9	1.6	0.82	34	38	<1.5	20	1.9	19	<150	150	18	130	22	7.3	<74	19		0.79	1.0		
Ethylbenzene	49,000	<0.92	<2.3	4.1	<230	<0.92	<9.2	<0.92	<0.92	<1.2	0.26	<2.3	230	<0.92	9.2	<230	<0.92	<1.2	<4.6	0.21[1]	0.31	610	<0.23		0.79[1]	<0.92		
m- & p-Xylenes	14,280	<0.92	1.5[1]	4.3	<230	<0.92	<9.2	<0.92	<0.92	<1.2	0.76	<2.3	620	<0.92	34	350	0.70[1]	<1.2	<4.6	0.66	1.2	1,800	0.33		3.2	1.9		
o-Xylene	14,280	<0.92	<2.3	1.8[1]	<230	<0.92	<9.2	<0.92	<0.92	<1.2	0.24	<2.3	60	<0.92	14	<230	<0.92	<1.2	<4.6	0.53	0.41	550	<0.23		0.93	<0.92		

(1) Detected Below Indicated Reporting Limit
(2) Well not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above threshold limits

TRC

TABLE 3.11

VAPOR WELL ANALYTICAL DATA FOR FEBRUARY 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																											
		WDI-VAPOR WELL - PROBE DEPTH (feet)																											
		29-10	29-23	29-35	30-07	30-23	30-35	31-10	31-30	32-08	32-18	32-35	33-10	33-35	34-10	34-23	34-40	35-10	35-38	36-10	36-30	37-10	37-30	38-10	38-34	39-07	39-30	40-10	40-25
Nonmethane Organics as methane/ppm		18	44	64	29	170	220	19	59	18	50	67	40	89	31	110	85	25	85	16	70	22	75	21	360	25	57	56	74
Methane/ppm	12,500	1.2	<0.50	<0.50	4.8	9,200	11,000	0.73	0.72	1.1	<0.50	<0.50	1.0	2.0	2.4	0.77	1.2	2.9	5.3	2.8	<0.50	2.6	<0.50	21	79	2.5	0.59	8,200	<0.50
Vinyl chloride	25	<1.6	<1.6	<1.6	<1.6	<3.9	5.5	<0.39	<0.39	<2.0	<0.39	<0.39	<0.39	<0.39	<1.6	<1.6	<1.6	<3.9	<26	<0.39	<0.69	<1.6	<1.6	<1.6	<16	<1.6	<1.6	<1.6	<3.9
Chloroethane	75,200	<1.5	<1.5	<1.5	<1.5	<3.8	<3.8	<0.38	<0.38	<1.9	<0.38	<0.38	<0.38	<0.38	<1.5	<1.5	<1.5	<3.8	<25	<0.38	<0.67	<1.5	<1.5	<1.5	<15	<1.5	<1.5	<1.5	<3.8
Acetone	31,200	6.7	3.6	19	2.8	<4.2	<4.2	6.1	4.5	8.0	7.0	15	1.8	8.4	3.7	3.1	4.2	11	46	36	14	9.6	7.7	11	100	9.6	1.6[1]	3.4	<4.2
trans-1,2-Dichloroethene	3,680	<1.0	<1.0	<1.0	<1.0	5.5	26	<0.25	<0.25	<1.3	<0.25	<0.25	<0.25	0.44	<1.0	<1.0	<1.0	<2.5	<17	<0.25	<0.45	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	<2.5
1,1-Dichloroethane	25,600	<0.99	<0.99	<0.99	0.71[1]	<2.5	<2.5	<0.25	0.56	1.6	0.65	<0.25	0.37	1.2	<0.99	<0.99	<0.99	<2.5	<17	<0.25	<0.44	1.3	<1.00	<0.99	<9.9	3.8	<1.00	<0.99	<2.5
cis-1,2-Dichloroethene	1,860	<1.0	<1.0	<1.0	<1.0	6.9	34	<0.25	<0.25	<1.3	<0.25	0.57	<0.25	2.0	<1.0	<1.0	<1.0	<2.5	<17	<0.25	<0.45	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	<2.5
Chloroform	340	2.0	<0.82	4.4	1.4	<2.0	<2.0	2.8	0.69	3.6	3.7	2.9	16	9.0	1.2	0.58[1]	1.8	6.4	41	7.8	4.2	1.1	<0.83	1.2	<8.2	1.3	1.1	2.9	<2.0
1,2-Dichloroethane	360	<0.99	<0.99	<0.99	<1.0	<2.5	<2.5	0.36	0.37	3.4	4.4	1.0	4.6	0.17[1]	<0.99	<0.99	<0.99	1.6[1]	<17	1.3	1.2	<1.0	<1.00	<0.99	<9.9	<1.00	1.5	2.0	<2.5
1,1,1-Trichloroethane	36,800	20	<0.73	0.65[1]	590	9.8	4.9	67	8.4	28	10	3.9	160	20	440	15	9.0	260	16	20	1.1	2,900	41	220	69	3,700	160	14	2.1
Benzene	200	1.3	<1.3	<1.3	<1.3	<3.1	<3.1	<0.31	0.22[1]	<1.6	<0.31	0.19[1]	<0.31	1.1	<1.3	<1.3	<1.3	<3.1	<21	0.61	<0.55	9.3	<1.3	<1.3	<13	2.6	<1.3	12	<3.1
Carbon Tetrachloride	68	<0.64	<0.64	<0.64	<0.64	<1.6	<1.6	<0.16	<0.16	<0.80	<0.16	<0.16	<0.16	<0.16	<0.64	<0.64	<0.64	<1.6	<11	0.13[1]	<0.28	<0.64	<0.64	<0.64	<6.4	<0.64	<0.64	<0.64	<1.6
1,2-Dichloropropane	186	<0.87	<0.87	<0.87	<0.87	<2.2	<2.2	<0.22	<0.22	<1.1	<0.22	<0.22	<0.22	<0.22	<0.87	<0.87	<0.87	<2.2	<15	<0.22	<0.38	<0.87	<0.87	<0.87	<8.7	<0.87	<0.87	<0.87	<2.2
Trichloroethene	822	<0.74	<0.74	0.57[1]	0.69[1]	32	76	0.45	7.8	<0.93	0.55	1.2	1.2	420	0.54[1]	<0.74	5.6	44	**1,600**	0.29	<0.33	0.98	0.89	0.69[1]	<7.4	2.6	<0.75	<0.74	5.5
1,1,2-Trichloroethane	440	<0.73	<0.73	<0.73	<0.73	<1.8	<1.8	<0.18	<0.18	<0.92	<0.18	<0.18	<0.18	<0.18	<0.73	<0.73	<0.73	<1.9	<12	<0.19	<0.33	<0.74	<0.74	<0.73	<7.3	<0.74	<0.74	<0.73	<1.8
Toluene	21,200	7.4	7.8	9.0	2.4	2.7	4.0	0.82	0.56	<1.3	0.38	0.76	0.94	1.1	4.2	3.3	3.4	<2.7	<18	2.6	1.9	1.8	1.2	1.5	<11	1.9	0.77[1]	2.5	2.3[1]
1,2-Dibromoethane	6	<0.52	<0.52	<0.52	<0.52	<1.3	<1.3	<0.13	<0.13	<0.65	<0.13	<0.13	<0.13	<0.13	<0.52	<0.52	<0.52	<1.3	<8.8	<0.13	<0.23	<0.53	<0.53	<0.52	<5.2	<0.53	<0.53	<0.52	<1.3
Tetrachloroethene	1,064	1.2	6.7	13	1.7	32	46	17	39	1.5	1.5	1.3	0.87	18	2.2	9.0	5.9	6.6	16	1.3	5.6	0.57[1]	1.9	1.3	<5.9	4.2	10	1.7	130
Ethylbenzene	49,000	1.2	0.68[1]	<0.92	<0.92	<2.3	<2.3	<0.23	<0.23	<1.2	<0.23	<0.23	0.15[1]	<0.23	0.83[1]	<0.92	0.66[1]	<2.3	<15	0.27	<0.40	1.0	<0.92	0.69[1]	<9.2	<0.92	<0.92	0.75[1]	<2.3
m- & p-Xylenes	14,280	5.2	2.9	1.8	1.6	2.1[1]	2.3[1]	0.43	0.35	<1.2	0.25	0.46	0.57	0.25	3.4	2.4	2.7	<2.3	<15	1.1	0.89	4.8	1.0	2.7	<9.2	1.5	1.1	2.7	1.8[1]
o-Xylene	14,280	1.2	0.66[1]	<0.92	<0.92	<2.3	<2.3	<0.23	0.50	<1.2	<0.23	0.16[1]	0.22[1]	<0.23	0.85[1]	<0.92	0.61[1]	<2.3	<15	1.2	0.25[1]	0.77[1]	<0.92	<0.92	<9.2	<0.92	<0.92	0.76[1]	<2.3

(1) Detected Below Indicated Reporting Limit
(2) Well not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million *ppb = parts per billion* *d = lab duplicate* *fd = field duplicate* **Bold Numbers** = *concentrations above threshold limits*

TRC

TABLE 3.11

VAPOR WELL ANALYTICAL DATA FOR FEBRUARY 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																										
		WDI-VAPOR WELL - PROBE DEPTH (feet)																										
		41-07	41-20	42-10	42-30	43-09	43-19	43-32	44-07	44-16	44-30	45-12	45-22	45-30	46-07	46-15	46-27	47-08	47-18	47-30	48-08	48-17	48-35	49-10	49-18	49-30	50-08	50-18	50-35
Nonmethane Organics as *methane/ppm*		2.1	57	(2)	(2)	(2)	150	380	78	47	140	(2)	11,000	2,000	(2)	84	86	(2)	110	160	9800	46,000	800	49	100	100	19	40	75
Methane/ppm	12,500	3.4	<0.50				7,300	**24,000**	**27**	1,600	5,700		**61,000**	**32,000**		<0.50	<0.50		680	2,100	**365,000**	**539,000**	**37,000**	2.6	<0.50	<0.50	6.0	5.1	<0.50
Vinyl chloride	25	<1.6	<1.6				**120**	**220**	<3.9	12	**50**		**380**	<49		<1.6	<1.6		<1.6	<1.6	**480**	<1,600	<20	<7.8	<7.8	<7.8	<0.39	<0.39	<0.39
Chloroethane	75,200	<1.5	<1.5				<3.8	<15	<3.8	<1.5	<3.8		<190	<48		<1.5	<1.5		<1.5	<1.5	<380	<1,500	<19	<7.6	<7.6	<7.6	<0.38	<0.38	<0.38
Acetone	31,200	42	2.8				<4.2	<17	100	14	<4.2		<210	100		2.1	11		6.5	14	<420	<1,700	<21	8.6	17	11	28	11	21
trans-1,2-Dichloroethene	3,680	<1.0	<1.0				<2.5	7.2[1]	<2.5	<1.0	<2.5		<130	<32		<1.0	<1.0		<1.0	<1.0	<250	<1,000	<13	<5.0	<5.0	<5.0	<0.25	<0.25	<0.25
1,1-Dichloroethane	25,600	<0.99	<0.99				<2.5	<9.9	4.0	6.7	42		<120	<31		5.8	<0.99		<0.99	<0.99	<250	<990	<12	9.6	<4.9	<4.9	<0.25	<0.25	1.6
cis-1,2-Dichloroethene	1,860	<1.0	<1.0				28	170	<2.5	<1.0	<2.5		1,400	<32		<1.0	0.81[1]		<1.0	<1.0	<250	<1,000	<13	<5.0	<5.0	<5.0	0.26	<0.25	6.5
Chloroform	340	1.1	<0.82				1.9[1]	<8.2	6.4	11	<2.1		<100	<26		1.9	1.3		6.7	<0.82	<200	<820	<10	4.7	3.3[1]	<4.1	2.4	1.3	0.85
1,2-Dichloroethane	360	<0.99	<0.99				<2.5	<9.9	<2.5	1.3	<2.5		<120	<31		2.1	3.2		11	4.9	<250	<990	<12	<4.9	<4.9	<4.9	<0.25	<0.25	<0.25
1,1,1-Trichloroethane	36,800	67	35				7.3	<7.3	250	97	58		<93	<23		99	8.3		6.5	<0.73	<180	<730	<9.2	1,300	570	3.2[1]	57	14	6.6
Benzene	200	<1.3	<1.3				<3.1	14	<3.1	1.0[1]	<3.1		**570**	**380**		<1.3	<1.3		<1.3	<1.3	**2,200**	**6,700**	12[1]	<6.3	<6.3	<6.3	0.28[1]	0.41	<0.31
Carbon Tetrachloride	68	<0.64	<0.64				<1.6	<6.4	<1.6	<0.64	<1.6		<80	<20		<0.64	<0.64		<0.64	<0.64	<160	<640	<8.0	<3.2	<3.2	<3.2	<0.16	<0.16	<0.16
1,2-Dichloropropane	186	<0.87	<0.87				<2.2	<8.7	<2.2	1.1	38		<110	<27		<0.87	<0.87		<0.87	<0.87	<220	<870	<11	<4.3	<4.3	<4.3	<0.22	<0.22	<0.22
Trichloroethene	822	<0.74	<0.74				6.2	<7.4	14	<0.75	<1.9		530	17[1]		15	31		2.5	2.2	<190	<740	<9.3	3.8	16	17	0.63	0.96	4.0
1,1,2-Trichloroethane	440	<0.73	<0.73				<1.8	<7.3	<1.9	<0.74	<1.9		<93	<23		<0.73	<0.73		<0.73	<0.73	<180	<730	<9.2	<3.7	<3.7	<3.7	<0.18	<0.18	<0.18
Toluene	21,200	0.72[1]	<1.1				6.8	<11	<2.7	3.1	<2.7		100[1]	47		1.7	2.1		2.5	3.6	<270	<1,100	9.4[1]	<5.3	<5.3	<5.3	1.7	1.1	0.88
1,2-Dibromoethane	6	<0.52	<0.52				<1.3	<5.2	<1.3	<0.53	<1.3		<66	<16		<0.52	<0.52		<0.52	<0.52	<130	<520	<6.5	<2.6	<2.6	<2.6	<0.13	<0.13	<0.13
Tetrachloroethene	1,064	32	18				7.7	<5.9	23	1.7	<1.5		<75	<19		130	220		9.9	26	<150	<590	18	54	730	900	1.4	2.7	2.8
Ethylbenzene	49,000	0.73[1]	<0.92				3.7	<9.2	<2.3	<0.92	<2.3		230	39		<0.92	<0.92		<0.92	<0.92	170[1]	1,300	17	<4.6	<4.6	<4.6	0.26	0.22[1]	<0.23
m- & p-Xylenes	14,280	2.7	<0.92				12	8.8[1]	<2.3	1.1	<2.3		<120	110		1.9	1.6		1.6	<0.92	280	6,400	32	<4.6	<4.6	<4.6	0.83	0.77	0.47
o-Xylene	14,280	<0.92	<0.92				2.7	<9.2	<2.3	<0.92	<2.3		<120	88		<0.92	<0.92		0.58[1]	<0.92	<230	<920	<12	<4.6	<4.6	<4.6	0.30	0.25	0.14[1]

(1) Detected Below Indicated Reporting Limit
(2) Well not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above threshold limits

TRC

TABLE 3.11

VAPOR WELL ANALYTICAL DATA FOR FEBRUARY 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																											
		WDI-VAPOR WELL - PROBE DEPTH (feet)																											
		51-18	51-30	BKGRND	BKGRND 2/18	05-29fd	11-35d	12-34d	14-35d	16-34d	17-35d	22-35d	25-35fd	27-19d	27-35d	30-23d	31-10d	32-35d	34-10d	37-10d	40-10d	40-25d	41-20d	43-32fd	43-32fdd	44-30fd	47-18d	48-08fd	49-10fd
Nonmethane Organics as methane/ppm		31,000	2,600	1.6	2.1	85	(3)	58	500	(3)	51	76	10,000	(3)	92	(3)	(3)	68	30	(3)	54	(3)	(3)	420	410	150	(3)	9,500	49
Methane/ppm	12,500	**386,000**	**41,000**	2.2	5.6	12,000		1.1	7,200		<0.50	0.78	**487,000**		<0.50			<0.50	2.4		8,200			**24,000**	**23,000**	5,800		**369,000**	2.4
Vinyl chloride	25	<1.6	**82**	<0.39	<1.6	<1.6	6.5			<1.6			<200	<1.6		<3.9	<0.39			<1.6		<3.9	<1.6	**240**		**46**	<1.6	**520**	<7.8
Chloroethane	75,200	<1.5	<76	<0.38	<1.5	<1.5	<1.9			<1.5			<190	<1.5		<3.8	<0.38			<1.5		<3.8	<1.5	<15		<3.8	<1.5	<380	<7.6
Acetone	31,200	<1.7	<84	13	7.5	4.5	<2.1			2.5			<210	40		<4.2	6.2			8.7		<4.2	3.1	<17		<4.2	5.8	<420	9.9
trans-1,2-Dichloroethene	3,680	<1.0	320	<0.25	<1.0	<1.0	<1.3			<1.0			<130	<1.0		5.4	<0.25			<1.0		<2.5	<1.0	8.2[1]		<2.5	<1.0	<250	<5.0
1,1-Dichloroethane	25,600	<1.00	<50	<0.25	<0.99	<0.99	0.98[1]			0.96[1]			<120	<0.99		<2.5	<0.25			1.3		<2.5	<0.99	<9.9		41	<0.99	<250	9.1
cis-1,2-Dichloroethene	1,860	<1.0	320	<0.25	<1.0	0.73[1]	1.9			<1.0			<130	<1.0		6.6	<0.25			<1.0		<2.5	<1.0	180		<2.5	<1.0	<250	<5.0
Chloroform	340	<0.83	<41	<0.21	<0.82	<0.82	<1.0			1.2			<100	<0.82		<2.0	2.8			1.1		<2.0	<0.82	<8.2		<2.1	6.6	<200	4.5
1,2-Dichloroethane	360	<1.00	<50	<0.25	<0.99	<0.99	<1.2			<0.99			<120	<0.99		<2.5	0.37			<1.0		<2.5	<0.99	<9.9		<2.5	11	<250	<4.9
1,1,1-Trichloroethane	36,800	<0.74	160	0.16[1]	<0.73	<0.73	<0.93			6.2			<92	21		9.3	68			2,900		2.1	35	<7.3		51	6.4	<180	1,300
Benzene	200	11	**310**	0.74	0.93[1]	<1.3	1.6			<1.3			<160	1.1[1]		<3.1	<0.31			9.2		<3.1	<1.3	16		<3.1	<1.3	**2,100**	<6.3
Carbon Tetrachloride	68	<0.64	<32	0.12[1]	<0.64	<0.64	<0.80			<0.64			<80	<0.64		<1.6	<0.16			<0.64		<1.6	<0.64	<6.4		<1.6	<0.64	<160	<3.2
1,2-Dichloropropane	186	<0.87	<44	<0.22	<0.87	<0.87	<1.1			<0.87			<110	<0.87		<2.2	<0.22			<0.87		<2.2	<0.87	<8.7		39	<0.87	<220	<4.3
Trichloroethene	822	<0.75	200	<0.19	<0.74	2.7	7.5			90			<93	<0.74		31	0.45			0.98		5.5	<0.74	<7.4		<1.9	2.4	<190	3.6[1]
1,1,2-Trichloroethane	440	<0.74	<37	<0.19	<0.73	<0.73	<0.93			<0.73			<92	<0.73		<1.8	<0.18			<0.74		<1.8	<0.73	<7.3		<1.9	<0.73	<180	<3.7
Toluene	21,200	<1.1	40[1]	2.0	2.1	<1.1	1.5			1.1			<130	4.3		2.8	0.85			1.8		2.3[1]	<1.1	<11		<2.7	2.6	<270	<5.3
1,2-Dibromoethane	6	<0.53	<26	<0.13	<0.52	<0.52	<0.66			<0.52			<65	<0.52		<1.3	<0.13			<0.53		<1.3	<0.52	<5.2		<1.3	<0.52	<130	<2.6
Tetrachloroethene	1,064	<0.60	<30	1.5	0.57[1]	17	38			1.9			<74	0.80		32	17			0.59[1]		130	18	<5.9		1.8	10	<150	55
Ethylbenzene	49,000	<0.92	69	0.20[1]	<0.92	<0.92	<1.2			<0.92			<120	0.79[1]		<2.3	<0.23			1.1		<2.3	<0.92	<9.2		<2.3	<0.92	160[1]	<4.6
m- & p-Xylenes	14,280	0.59[1]	110	0.68	0.88[1]	0.82[1]	<1.2			<0.92			<120	3.3		2.1[1]	0.42			4.8		2.0[1]	<0.92	9.8		<2.3	1.6	280	<4.6
o-Xylene	14,280	<0.92	<46	0.26	<0.92	<0.92	<1.2			<0.92			<120	0.92		<2.3	<0.23			0.82[1]		<2.3	<0.92	<9.2		<2.3	0.58[1]	<230	<4.6

(1) Detected Below Indicated Reporting Limit
(2) Well not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above threshold limits

TRC

TABLE 3.11

VAPOR WELL ANALYTICAL DATA FOR FEBRUARY 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS			
		WDI-VW			
		50-18d	51-18fd	51-30d	BKGRNDd
Nonmethane Organics as methane/ppm		37	35,000	2,400	1.8
Methane/ppm	12,500	5.2	**450,000**	**42,000**	2.2
Vinyl chloride	25	<0.39	<1.6		<0.39
Chloroethane	75,200	<0.38	<1.5		<0.38
Acetone	31,200	11	<1.7		13
trans-1,2-Dichloroethene	3,680	<0.25	<1.0		<0.25
1,1-Dichloroethane	25,600	<0.25	<1.00		<0.25
cis-1,2-Dichloroethene	1,860	<0.25	<1.0		<0.25
Chloroform	340	1.3	<0.83		<0.21
1,2-Dichloroethane	360	<0.25	<1.00		<0.25
1,1,1-Trichloroethane	36,800	14	<0.74		0.14(1)
Benzene	200	0.41	15		0.72
Carbon Tetrachloride	68	<0.16	<0.64		0.12(1)
1,2-Dichloropropane	186	<0.22	<0.87		<0.22
Trichloroethene	822	0.97	<0.75		<0.19
1,1,2-Trichloroethane	440	<0.18	<0.74		<0.19
Toluene	21,200	1.1	<1.1		2.0
1,2-Dibromoethane	6	<0.13	<0.53		<0.13
Tetrachloroethene	1,064	2.8	<0.60		1.5
Ethylbenzene	49,000	0.22(1)	<0.92		0.17(1)
m- & p-Xylenes	14,280	0.78	0.74(1)		0.62
o-Xylene	14,280	0.27	<0.92		0.23(1)

94-256/Rpts/AnSoVaMoRe (4/16/99/rmm)

(1) Detected Below Indicated Reporting Limit
(2) Well not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate
Bold Numbers = concentrations above threshold limits

TABLE 3.12

VAPOR WELL ANALYTICAL DATA FOR APRIL 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																										
		WDI-VAPOR WELL - PROBE DEPTH (feet)																										
		01-35	02-35	03-35	04-23	05-29	06-34	08-35	10-35	11-35	12-34	13-31	14-35	16-34	17-35	18-36	20-35	21-36	22-35	23-36	24-35	25-35	26-35	27-09	27-19	27-35	28-10	28-25
Nonmethane Organics as methane/ppm		83	120	200	14,000	69	74	54	150	92	58	180	980	47	50	7,900	71	94	93	150	77	7,400	55	75	10	100	(2)	(2)
Methane/ppm	12,500	10	8,700	**16,200**	**190,000**	540	2,400	10,000	6,700	**15,000**	1.0	**13,400**	8,150	<0.50	<0.50	6.4	<0.50	1.3	340	4,400	<0.50	**334,100**	0.93	700	**1.3**	<0.50		
Vinyl chloride	25	<1.6	<3.9	<20	**280**[1]	<1.6	3.3	17	**120**	5.6	<1.6	**46**	**350**	<7.8	<7.8	<390	<7.8	<7.8	<78	40	<3.9	<390	<1.6	<1.6	<1.6	<1.6		
Chloroethane	75,200	<1.5	<3.8	<19	<380	<1.5	<1.5	<7.6	<7.6	<1.5	<1.5	<1.5	<95	<7.6	<7.6	<380	<7.6	<7.6	<76	<19	<3.8	<380	<1.5	<1.5	<1.5	<1.5		
Acetone	31,200	6.7	<4.2	<21	<420	4.5	<1.7	<8.4	<8.4	<1.7	<1.7	<1.7	<110	6.5[1]	7.7[1]	<420	5.2[1]	11	<84	92	3.4[1]	<420	<1.7	6.4	27	9.5		
trans-1,2-Dichloroethene	3,680	<1.0	<2.5	<13	<250	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	12	<63	<5.0	<5.0	<250	<5.0	<5.0	<50	42	<2.5	<250	<1.0	<1.0	<1.0	<1.0		
1,1-Dichloroethane	25,600	<0.99	<2.5	<12	<250	<0.99	<0.99	<4.9	85	<0.99	<0.99	0.99	67	<4.9	<4.9	<250	<4.9	<4.9	<49	13	<2.5	<250	1.7	1.2	<0.99	<0.99		
cis-1,2-Dichloroethene	1,860	<1.0	<2.5	<13	<250	<1.0	<1.0	<5.0	90	2.6	<1.0	69	<63	<5.0	<5.0	<250	<5.0	<5.0	<50	130	<2.5	<250	77	<1.0	<1.0	<1.0		
Chloroform	340	<0.82	<2.0	<10	<200	<0.82	<0.82	<4.1	<4.1	<0.82	<0.82	<0.82	<51	3.2[1]	<4.1	<200	<4.1	<4.1	<41	<10	<2.0	<200	0.51[1]	<0.82	0.93	<0.82		
1,2-Dichloroethane	360	<0.99	<2.5	<12	<250	<0.99	<0.99	<4.9	<4.9	<0.99	<0.99	<0.99	<62	<4.9	<4.9	<250	<4.9	<4.9	<49	<12	<2.5	<250	<1.0	<0.99	<0.99	<0.99		
1,1,1-Trichloroethane	36,800	<0.73	<1.8	<9.2	<180	<0.73	<0.73	<3.7	<3.7	<0.73	<0.73	<0.73	<46	8.9	240	<180	<3.7	<3.7	<37	<9.2	<1.8	<180	1.0	4.9	26	<0.73		
Benzene	200	<1.3	<3.1	<16	1,100	<1.3	<1.3	<6.3	<6.3	1.5	<1.3	3.6	<78	<6.3	<6.3	**420**	<6.3	<6.3	<63	<16	<3.1	<310	1.1[1]	<1.3	<1.3	<1.3		
Carbon Tetrachloride	68	<0.64	<1.6	<8.0	<160	<0.64	<0.64	<3.2	<3.2	<0.64	<0.64	<0.64	<40	<3.2	<3.2	<160	<3.2	<3.2	<32	<8.0	<1.6	<160	<0.64	<0.64	<0.64	<0.64		
1,2-Dichloropropane	186	<0.87	<2.2	<11	<220	<0.87	<0.87	<4.3	<4.3	<0.87	<0.87	<0.87	97	<4.3	<4.3	<220	<4.3	<4.3	<43	<11	<2.2	<220	<0.87	<0.87	<0.87	<0.87		
Trichloroethene	822	<0.74	<1.9	<9.3	<190	0.65[1]	0.49[1]	<3.7	<3.7	3.9	1.2	67	<47	280	8.9	<190	4.9	360	**3,200**	**850**	8.3	<190	76	<0.74	<0.74	<0.74		
1,1,2-Trichloroethane	440	<0.73	<1.8	<9.2	<180	<0.73	<0.73	<3.7	<3.7	<0.73	<0.73	<0.73	<46	<3.7	<3.7	<180	<3.7	<3.7	<37	<9.2	<1.8	<180	<0.74	<0.73	<0.73	<0.73		
Toluene	21,200	<1.1	<2.7	<13	<270	<1.1	<1.1	<5.3	<5.3	2.5	2.0	1.9	<66	<5.3	<5.3	190[1]	<5.3	<5.3	<53	<13	<2.7	<270	3.5	<1.1	1.6	<1.1		
1,2-Dibromoethane	6	<0.52	<1.3	<6.5	<130	<0.52	<0.52	<2.6	<2.6	<0.52	<0.52	<0.52	<33	<2.6	<2.6	<130	<2.6	<2.6	<26	<6.5	<1.3	<130	<0.53	<0.52	<0.52	<0.52		
Tetrachloroethene	1,064	6.0	<1.5	28	<150	15	1.1	<3.0	<3.0	16	45	0.95	<37	5	13	<150	250	17	190	23	6.8	<150	28	<0.59	1.7	0.72		
Ethylbenzene	49,000	<0.92	2.4	<12	430	<0.92	<0.92	<4.6	<4.6	<0.92	<0.92	0.66[1]	1,700	<4.6	<4.6	<230	<4.6	<4.6	<46	<12	<2.3	<230	<0.92	<0.92	<0.92	<0.92		
m- & p-Xylenes	14,280	<0.92	2.6	<12	<230	<0.92	<0.92	<4.6	<4.6	1.3	<0.92	1.6	1,300	<4.6	<4.6	500	<4.6	<4.6	<46	<12	<2.3	<230	1.2	<0.92	0.88[1]	<0.92		
o-Xylene	14,280	<0.92	<2.3	<12	<230	<0.92	<0.92	<4.6	<4.6	<0.92	<0.92	0.88[1]	910	<4.6	<4.6	<230	<4.6	<4.6	<46	<12	<2.3	<230	<0.92	<0.92	<0.92	<0.92		

(1) Detected Below Indicated Reporting Limit.
(2) Well not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above laboratory detection limits

TRC

TABLE 3.12

VAPOR WELL ANALYTICAL DATA FOR APRIL 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																										
		WDI-VAPOR WELL - PROBE DEPTH (feet)																										
		29-10	29-23	29-35	30-07	30-23	30-35	31-10	31-30	32-08	32-18	32-35	33-10	33-35	34-10	34-23	34-40	35-10	35-38	36-10	36-30	37-10	37-30	38-10	38-34	39-07	39-30	40-10	40-25
Nonmethane Organics as methane/ppm		17	47	73	52	180	220	24	72	28	60	93	36	67	39	60	60	27	63	21	67	17	56	29	330	43	59	76	91
Methane/ppm	12,500	1.1	<0.50	<0.50	9.8	12,000	**13,000**	0.69	0.75	0.95	<0.50	<0.50	0.99	1.4	0.70	<0.50	0.77	1.0	3.7	2.0	<0.50	1.4	<0.50	2.7	140	<0.50	0.72	**15,000**	<0.50
Vinyl chloride	25	<1.6	<1.6	<1.6	<1.6	1.3(1)	2.7	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<3.9	<1.6	<1.6	<1.6	<1.6	<1.6	<2.0	<20	<16	<3.9	<3.9	<1.6
Chloroethane	75,200	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<3.8	<1.5	<1.5	<1.5	<1.5	<1.5	<1.9	<19	<15	<3.8	<3.8	<1.5
Acetone	31,200	4.2	3.5	8.9	<1.7	<1.7	<1.7	4.7	4.3	8.6	8.4	14	4.7	6.3	4.4	7.1	3.8	6.3	3.4	6.2	3.8	5.4	5.1	11	<21	<17	11	<4.2	11
trans-1,2-Dichloroethene	3,680	<1.0	<1.0	<1.0	<1.0	5.8	14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.3	<13	<10	<2.5	<2.5	<1.0
1,1-Dichloroethane	25,600	<0.99	<0.99	<0.99	6.0	2.4	0.78(1)	<0.99	<0.99	0.99	<0.99	<0.99	0.97(1)	1.5	<0.99	<0.99	<0.99	<2.5	2.5	<0.99	<0.99	1.6	<0.99	<1.2	<12	<9.9	<2.5	<2.5	<0.99
cis-1,2-Dichloroethene	1,860	<1.0	<1.0	<1.0	<1.0	3.8	11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.9	<1.0	<1.0	<1.0	<2.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.3	<13	<10	<2.5	<2.5	<1.0
Chloroform	340	0.53(1)	<0.82	2.5	0.68(1)	<0.83	<0.83	<0.82	<0.82	0.99	0.82	2.0	8.9	8.8	<0.82	0.89	2.1	<2.0	50	0.93	3.6	<0.82	<0.82	<1.0	<10	<8.2	<2.0	2.1	<0.82
1,2-Dichloroethane	360	<0.99	<0.99	<0.99	<1.0	<1.0	<1.0	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<2.5	2.3	<0.99	<0.99	<0.99	<0.99	<1.2	<12	<9.9	<2.5	7.5	<0.99
1,1,1-Trichloroethane	36,800	390	5.1	2.6	1,400	35	1.9	36	6.7	47	8.4	3.0	290	27	470	4.9	2.5	49	11	9.9	<0.73	1,400	9.9	120	12	640	230	17	2.3
Benzene	200	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<3.1	<1.3	<1.3	<1.3	1.5	<1.3	<1.6	<16	<13	<3.1	18	<1.3
Carbon Tetrachloride	68	<0.64	0.69	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<1.6	<0.64	<0.64	<0.64	<0.64	<0.64	<0.80	<8.0	<6.4	<1.6	<1.6	<0.64
1,2-Dichloropropane	186	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<2.2	<0.87	<0.87	<0.87	<0.87	<0.87	<1.1	<11	<8.7	<2.2	<2.2	<0.87
Trichloroethene	822	<0.74	<0.74	1.4	0.51(1)	21	40	<0.74	6.0	<0.74	<0.74	0.83	0.58(1)	360	0.67(1)	<0.74	6.0	50	**1,500**	<0.74	<0.74	<0.74	<0.74	<0.93	<9.3	<7.4	<1.9	1.2(1)	7.3
1,1,2-Trichloroethane	440	<0.73	<0.73	<0.73	<0.74	<0.74	<0.74	<0.73	<0.73	<0.73	<0.73	<0.73	<0.73	<0.73	<0.73	<0.73	<0.73	<1.8	<0.73	<0.73	<0.73	<0.73	<0.73	<0.92	<9.2	<7.3	<1.8	<1.8	<0.73
Toluene	21,200	1.1	1.1	0.94(1)	1.4	0.72(1)	1.1	1.1	<1.1	0.75(1)	<1.1	<1.1	0.65(1)	<1.1	0.67(1)	<1.1	<1.1	<2.7	<1.1	0.69(1)	<1.1	1.9	<1.1	1.0(1)	<13	<11	1.8(1)	2.7	<1.1
1,2-Dibromoethane	6	<0.52	<0.52	<0.52	<0.53	<0.53	<0.53	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<1.3	<0.52	<0.52	<0.52	<0.52	<0.52	<0.65	<6.5	<5.2	<1.3	<1.3	<0.52
Tetrachloroethene	1,064	1.5	7.1	17	2.5	27	39	16	35	1.4	1.1	1.2	1.0	21	2.5	11	8.0	2.9	28	0.87	2.1	0.46(1)	2.2	1.2	<7.4	6.8	11	2.7	**190**
Ethylbenzene	49,000	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<2.3	<0.92	<0.92	<0.92	<0.92	<0.92	<1.2	<12	<9.2	<2.3	<2.3	<0.92
m- & p-Xylenes	14,280	0.84(1)	0.58(1)	<0.92	<0.92	<0.92	<0.92	0.68(1)	<0.92	<0.92	0.67(1)	<0.92	<0.92	<0.92	0.66(1)	<0.92	0.90(1)	<2.3	<0.92	<0.92	<0.92	0.61(1)	<0.92	0.81(1)	<12	<9.2	<2.3	2.7	<0.92
o-Xylene	14,280	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<2.3	<0.92	<0.92	<0.92	<0.92	<0.92	<1.2	<12	<9.2	<2.3	<2.3	<0.92

(1) Detected Below Indicated Reporting Limit.
(2) Well not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above laboratory detection limits

TRC

TABLE 3.12

VAPOR WELL ANALYTICAL DATA FOR APRIL 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																										
		WDI-VAPOR WELL - PROBE DEPTH (feet)																										
		41-07	41-20	42-10	42-30	43-09	43-19	43-32	44-07	44-16	44-30	45-12	45-22	45-30	46-07	46-15	46-27	47-08	47-18	47-30	48-08	48-17	48-35	49-10	49-18	49-30	50-08	50-18	50-35
Nonmethane Organics as methane/ppm		48	76	(2)	(2)	61	270	280	87	47	120	(2)	11,000	370	(2)	100	100	33	89	50	(2)	28,000	590	58	75	76	23	48	91
Methane/parts per million (ppm)	12,500	<0.50	<0.50			160	**15,100**	**20,500**	880	2,000	8,000		**63,100**	**14,300**		<0.50	<0.50	3.9	2,900	1,600		**441,000**	**31,600**	9.2	<0.50	<0.50	4.1	0.93	<0.50
Vinyl chloride	25	<1.6	<1.6			2.5	**430**	**230**	<3.9	7.2(1)	**47**		**6,500**	<20		<1.6	<1.6	<1.6	<7.8	<7.8		<1,600	<20	<7.8	<7.8	<39	<3.9	<3.9	<1.6
Chloroethane	75,200	<1.5	<1.5			<1.5	1.4(1)	<1.5	<3.8	<7.6	<1.5		<380	<19		<1.5	<1.5	<1.5	<7.6	<7.6		<1,500	<19	<7.6	<7.6	<38	<3.8	<3.8	<1.5
Acetone	31,200	5.3	5.8			<1.7	<1.7	<1.7	<4.2	<8.4	<1.7		<420	<21		8.8	6.0	4.8	<8.4	<8.4		<1,700	<21	<8.4	<8.4	28(1)	17	10	6.2
trans-1,2-Dichloroethene	3,680	<1.0	<1.0			<1.0	11	8.6	<2.5	<5.0	<1.0		4,700	<13		<1.0	<1.0	<1.0	<5.0	<5.0		<1,000	<13	<5.0	<5.0	<25	<2.5	<2.5	<1.0
1,1-Dichloroethane	25,600	<0.99	<0.99			<0.99	<0.99	1.4	1.8(1)	4.0(1)	25		<250	<12		3.6	<0.99	<0.99	<4.9	<4.9		<990	<12	49	<4.9	<25	<2.5	<2.5	0.84(1)
cis-1,2-Dichloroethene	1,860	<1.0	<1.0			6.5	98	190	<2.5	<5.0	<1.0		**8,000**	<13		<1.0	<1.0	<1.0	<5.0	<5.0		<1,000	<13	<5.0	<5.0	<25	<2.5	<2.5	1.4
Chloroform	340	<0.82	<0.82			<0.82	0.64(1)	<0.82	1.8(1)	<4.1	<0.82		<200	<10		1.1	1.1	0.81(1)	<4.1	<4.1		<820	<10	<4.1	<4.1	<20	<2.0	<2.0	0.59(1)
1,2-Dichloroethane	360	<0.99	<0.99			<0.99	4.2	<0.99	<2.5	<4.9	<0.99		180(1)	<12		<0.99	<0.99	<0.99	8.0	<4.9		<990	<12	<4.9	<4.9	<25	<2.5	<2.5	<0.99
1,1,1-Trichloroethane	36,800	34	22			3.2	3.2	<0.73	51	110	5.5		<180	<9.2		83	7.0	1.1	<3.7	<3.7		<730	<9.2	410	6.5	<18	110	210	13
Benzene	200	<1.3	<1.3			0.90(1)	12	15	2.3(1)	<6.3	<1.3		**2,800**	41		<1.3	<1.3	<1.3	<6.3	<6.3		**4,100**	<16	<6.3	<6.3	<31	<3.1	<3.1	<1.3
Carbon Tetrachloride	68	<0.64	<0.64			<0.64	<0.64	<0.64	<1.6	<3.2	<0.64		<160	<8.0		<0.64	<0.64	<0.64	<3.2	<3.2		<640	<8.0	<3.2	<3.2	<16	<1.6	<1.6	<0.64
1,2-Dichloropropane	186	<0.87	<0.87			<0.87	0.79(1)	<0.87	<2.2	<4.3	19		<220	<11		<0.87	<0.87	<0.87	<4.3	<4.3		<870	<11	<4.3	<4.3	<22	<2.2	<2.2	<0.87
Trichloroethene	822	<0.74	<0.74			21	6.4	1.2	<1.9	<3.7	<0.74		240	<9.3		16	28	<0.74	<3.7	<3.7		<740	6.2(1)	4.9	5.7	16(1)	<1.9	<1.9	2.9
1,1,2-Trichloroethane	440	<0.73	<0.73			<0.73	<0.73	<0.73	<1.8	<3.7	<0.73		<180	<9.2		<0.73	<0.73	<0.73	<3.7	<3.7		<730	<9.2	<3.7	<3.7	<18	<1.8	<1.8	<0.73
Toluene	21,200	<1.1	0.75(1)			0.92(1)	5.6	1.8	5.7	<5.3	1.6		770	<13		<1.1	<1.1	<1.1	<5.3	<5.3		<1,100	<13	<5.3	<5.3	<27	<2.7	<2.7	<1.1
1,2-Dibromoethane	6	<0.52	<0.52			<0.52	<0.52	<0.52	<1.3	<2.6	<0.52		<130	<6.5		<0.52	<0.52	<0.52	<2.6	<2.6		<520	<6.5	<2.6	<2.6	<13	<1.3	<1.3	<0.52
Tetrachloroethene	1,064	35	14			15	7.5	0.57(1)	1.1(1)	<3.0	<0.59		<150	<7.4		160	230	1.0	5.7	6.5		<590	21	50	360	930	1.1(1)	1.9	2.8
Ethylbenzene	49,000	<0.92	<0.92			<0.92	2.9	3.9	<2.3	<4.6	<0.92		210(1)	<12		<0.92	<0.92	<0.92	<4.6	<4.6		3,100	<12	<4.6	<4.6	<23	<2.3	<2.3	<0.92
m- & p-Xylenes	14,280	<0.92	0.57(1)			<0.92	2.8	7.0	1.8(1)	<4.6	2.1		350	<12		<0.92	<0.92	<0.92	<4.6	<4.6		1,400	<12	<4.6	<4.6	<23	<2.3	<2.3	<0.92
o-Xylene	14,280	<0.92	<0.92			<0.92	3.3	0.78(1)	1.6(1)	<4.6	0.90(1)		300	<12		<0.92	<0.92	<0.92	<4.6	<4.6		<920	<12	<4.6	<4.6	<23	<2.3	<2.3	<0.92

(1) Detected Below Indicated Reporting Limit.
(2) Well not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above laboratory detection limits

TRC

TABLE 3.12

VAPOR WELL ANALYTICAL DATA FOR APRIL 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																										
		WDI-VW																										
		51-18	51-30	MP-1-05	MP-1-15	MP-2-05	MP-2-15	AMB 4/23	01-35d	01-35fd	05-29d	18-36fd	21-36d	21-36fd	22-35d	26-35d	27-09d	29-10d	30-07d	30-35fd	31-10d	32-08d	32-18d	34-23d	36-30fd	38-10d	39-07d	41-20d	41-20fd
Nonmethane Organics as methane/ppm		22,000	1,800	77	2,200	53	66,000	5.2	78	73	72	7,800	(3)	92	95	(3)	71	(3)	51	220	(3)	(3)	59	(3)	66	29	42	75	76
Methane/ppm	12,500	**234,000**	**38,100**	<0.50	**73,700**	<0.50	**644,000**	1.6	10	10	550	6.3		1.2	330		690		9.7	**13,000**			<0.50		<0.50	30	<0.50	<0.50	<0.50
Vinyl chloride	25	<780	**65**[1]	<1.6	<160	<1.6	<1,600	<1.6		<1.6		<390	<7.8	<7.8	<78	<1.6		<1.6		**2.9**	<1.6	<1.6	<1.6	<1.6	<1.6				<3.9
Chloroethane	75,200	<760	<76	<1.5	<150	<1.5	<1,500	<1.5		5.9		<380	<7.6	<7.6	<76	<1.5		<1.5		<1.5	<1.5	<1.5	<1.5	<1.5	<1.5				<3.8
Acetone	31,200	<840	<84	4.4	<170	3.7	<1,700	4.0		6.7		<420	9.7	8.8	<84	<1.7		3.5		<1.7	4.0	8.8	6.8	6.3	4.2				5.9
trans-1,2-Dichloroethene	3,680	<500	190	<1.0	<100	<1.0	<1,000	<1.0		<1.0		<250	<5.0	<5.0	<50	<1.0		<1.0		14	<1.0	<1.0	<1.0	<1.0	<1.0				<2.5
1,1-Dichloroethane	25,600	<490	<49	<0.99	<99	<0.99	<990	<0.99		<0.99		<250	<4.9	<4.9	<49	1.7		<0.99		0.82[1]	<0.99	0.97[1]	<0.99	<0.99	<0.99				<2.5
cis-1,2-Dichloroethene	1,860	<500	210	<1.0	<100	<1.0	<1,000	<1.0		<1.0		<250	<5.0	<5.0	<50	77		<1.0		11	<1.0	<1.0	<1.0	<1.0	<1.0				<2.5
Chloroform	340	<410	<41	<0.82	<82	<0.82	<820	<0.82		<0.82		<200	<4.1	<4.1	<41	0.53[1]		0.54[1]		<0.83	<0.82	0.98	0.83	0.91	3.9				<2.0
1,2-Dichloroethane	360	<490	<49	<0.99	<99	<0.99	<990	<0.99		<0.99		<250	<4.9	<4.9	<49	<1.0		<0.99		<1.0	<0.99	<0.99	<0.99	<0.99	<0.99				<2.5
1,1,1-Trichloroethane	36,800	<370	<37	6.4	<73	<0.73	<730	<0.73		<0.73		<180	<3.7	<3.7	<37	1.0		390		1.9	36	46	8.1	4.9	<0.73				22
Benzene	200	**1,200**	86	<1.3	120[1]	<1.3	**60,000**	<1.3		<1.3		**470**	<6.3	<6.3	<63	0.94[1]		<1.3		<1.3	<1.3	<1.3	<1.3	<1.3	<1.3				<3.1
Carbon Tetrachloride	68	<320	<32	<0.64	<64	<0.64	<640	<0.64		<0.64		<160	<3.2	<3.2	<32	<0.64		<0.64		<0.64	<0.64	<0.64	<0.64	<0.64	<0.64				<1.6
1,2-Dichloropropane	186	<430	<43	<0.87	<87	<0.87	<870	<0.87		<0.87		<220	<4.3	<4.3	<43	<0.87		<0.87		<0.87	<0.87	<0.87	<0.87	<0.87	<0.87				<2.2
Trichloroethene	822	<370	130	<0.74	<74	4.2	<740	<0.74		<0.74		<190	360	360	**3,100**	73		<0.74		42	<0.74	<0.74	<0.74	<0.74	<0.74				<1.9
1,1,2-Trichloroethane	440	<370	<37	<0.73	<73	<0.73	<730	<0.73		<0.73		<180	<3.7	<3.7	<37	<0.74		<0.73		<0.74	<0.73	<0.73	<0.73	<0.73	<0.73				<1.8
Toluene	21,200	<530	<53	<1.1	<110	<1.1	1,600	1.3		<1.1		<270	<5.3	<5.3	<53	3.1		1.1		1.1	1.1	0.71[1]	<1.1	<1.1	<1.1				<2.7
1,2-Dibromoethane	6	<260	<26	<0.52	<52	<0.52	<520	<0.52		<0.52		<130	<2.6	<2.6	<26	<0.53		<0.52		<0.53	<0.52	<0.52	<0.52	<0.52	<0.52				<1.3
Tetrachloroethene	1,064	<300	<30	3.8	<59	130	<590	<0.59		6.0		<150	17	17	190	26		1.5		41	16	1.4	1.1	11	2.0				16
Ethylbenzene	49,000	<460	<46	<0.92	<92	<0.92	680[1]	<0.92		<0.92		<230	<4.6	<4.6	<46	<0.92		<0.92		<0.92	<0.92	<0.92	<0.92	<0.92	<0.92				<2.3
m- & p-Xylenes	14,280	<460	<46	<0.92	<92	<0.92	5,200	<0.92		<0.92		480	<4.6	<4.6	<46	1.1		0.82[1]		<0.92	0.68[1]	<0.92	<0.92	<0.92	<0.92				<2.3
o-Xylene	14,280	<460	<46	<0.92	<92	<0.92	<920	<0.92		<0.92		<230	<4.6	<4.6	<46	<0.92		<0.92		<0.92	<0.92	<0.92	<0.92	<0.92	<0.92				<2.3

(1) Detected Below Indicated Reporting Limit.
(2) Well not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above laboratory detection limits

TRC

TABLE 3.12

VAPOR WELL ANALYTICAL DATA FOR APRIL 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND WDI-VW					
		44-07d	51-30fd	51-30fdd	MP-2-05d	MP-2-15d	AMB 4/23
Nonmethane Organics as methane/ppm		(3)	**1,900**	**1,900**	**52**	(3)	(3)
Methane/ppm	12,500		**38,300**	**38,000**	<0.50		
Vinyl chloride	25	<3.9	**74**(1)			<1,600	<1.6
Chloroethane	75,200	<3.8	<76			<1,500	<1.5
Acetone	31,200	<4.2	<84			<1,700	3.8
trans-1,2-Dichloroethene	3,680	<2.5	200			<1,000	<1.0
1,1-Dichloroethane	25,600	1.7(1)	<49			<990	<0.99
cis-1,2-Dichloroethene	1,860	<2.5	210			<1,000	<1.0
Chloroform	340	1.6(1)	<41			<820	<0.82
1,2-Dichloroethane	360	<2.5	<49			<990	<0.99
1,1,1-Trichloroethane	36,800	51	<37			<730	<0.73
Benzene	200	2.3(1)	88			**59,000**	<1.3
Carbon Tetrachloride	68	<1.6	<32			<640	<0.64
1,2-Dichloropropane	186	<2.2	<43			<870	<0.87
Trichloroethene	822	<1.9	140			<740	<0.74
1,1,2-Trichloroethane	440	<1.8	<37			<730	<0.73
Toluene	21,200	5.5	<53			1,600	1.2
1,2-Dibromoethane	6	<1.3	**<26**			<520	<0.52
Tetrachloroethene	1,064	1.1(1)	<30			<590	<0.59
Ethylbenzene	49,000	<2.3	<46			680(1)	<0.92
m- & p-Xylenes	14,280	1.8(1)	<46			5,100	<0.92
o-Xylene	14,280	1.6(1)	<46			<920	<0.92

94-256/Rpts/ReDeInSuRe/Tbls&Figs(new) (4/16/99/rmm)

(1) Detected Below Indicated Reporting Limit.
(2) Well not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate
Bold Numbers = concentrations above laboratory detection limits

TABLE 3.13

VAPOR WELL ANALYTICAL DATA FOR JULY 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																										
		WDI-VAPOR WELL - PROBE DEPTH (feet)																										
		01-35	02-35	03-35	04-23	05-29	06-34	08-35	10-35	11-35	12-34	13-31	14-35	16-34	17-35	18-36	20-35	21-36	22-35	23-36	24-35	25-35	26-35	27-09	27-19	27-35	28-10	28-25
Nonmethane Organics as methane/ppm		110	120	160	21,000	72	84	48	180	190	63	240	490	79	94	780	91	120	81	160	110	5,300	82	130	28	98	42	65
Methane/ppm	12,500	0.76	130	9,050	**173,000**	<0.50	1,300	2.9	7,060	**15,100**	<0.50	7,500	110	0.63	<0.50	2.4	1.4	6.9	2.1	2,100	<0.50	**65,000**	1.3	8.6	2.7	<0.50	0.85	<0.50
Vinyl chloride	25	<1.6	<1.6	<3.9	<390	<1.6	<1.6	<1.6	**160**	6.6	<1.6	**37**	<39	<1.6	<1.6	<16	<1.6	<1.6	<1.6	**26**	<1.6	<99	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Chloroethane	75,200	<1.5	<1.5	<3.8	<380	<1.5	<1.5	<1.5	<3.8	<3.8	<1.5	<3.8	<38	<1.5	<1.5	<15	<1.5	<1.5	<1.5	<1.5	<1.5	<96	<1.5	<1.5	2.7	<1.5	<1.5	<1.5
Acetone	31,200	2.8	<1.7	<4.2	<420	3.1	<1.7	3.4	<4.2	<4.2	<1.7	<4.2	<42	2.2	<1.7	<17	8.8	1.9	4.8	<1.7	2.5	<110	2.6	5.1	9.3	2.5	2.7	1.5[1]
trans-1,2-Dichloroethene	3,680	<1.0	<1.0	<2.5	<250	<1.0	<1.0	<1.0	<2.5	<2.5	<1.0	10	<25	<1.0	<1.0	<10	<1.0	<1.0	<1.0	38	<1.0	<64	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	25,600	<0.99	<0.99	<2.5	<250	<0.99	<1.0	<0.99	90	<2.5	<1.0	<2.5	17[1]	3.1	<1.0	<10	<0.99	<0.99	3.1	15	<0.99	<62	2.3	2.1	<0.99	<0.99	<0.99	<0.99
cis-1,2-Dichloroethene	1,860	<1.0	<1.0	<2.5	<250	<1.0	<1.0	<1.0	110	<2.5	<1.0	52	<25	<1.0	<1.0	<10	<1.0	1.1	5.6	130	<1.0	<64	47	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	340	<0.82	<0.82	<2.0	<200	<0.82	<0.83	<0.82	<2.0	<2.1	<0.83	<2.0	<20	4.5	<0.83	<8.3	<0.82	1.8	6.6	1.4	<0.82	<52	<0.83	<0.82	<0.82	<0.82	1.7	1.4
1,2-Dichloroethane	360	<0.99	<0.99	<2.5	<250	<0.99	<1.0	<0.99	<2.5	<2.5	<1.0	<2.5	<25	<1.0	<1.0	<10	<0.99	<0.99	<0.99	<0.99	<0.99	<62	<1.0	<0.99	<0.99	<0.99	<0.99	<0.99
1,1,1-Trichloroethane	36,800	<0.73	<0.73	<1.8	<180	<0.73	<0.74	<0.73	<1.8	<1.9	2.6	<1.8	<18	8.4	310	13	<0.73	1.7	5.3	0.95	<0.73	<46	0.71[1]	4.2	23	<0.73	24	0.62[1]
Benzene	200	<1.3	<1.3	3.4	890	<1.3	0.87[1]	<1.3	<3.1	<3.1	<1.3	3.7	<31	0.83[1]	<1.3	110	<1.3	<1.3	<1.3	1.1[1]	<1.3	<78	0.94[1]	<1.3	<1.3	<1.3	<1.3	<1.3
Carbon Tetrachloride	68	<0.64	<0.64	<1.6	<160	<0.64	<0.64	<0.64	<1.6	<1.6	<0.64	<1.6	<16	<0.64	<0.64	<6.4	<0.64	<0.64	<0.64	<0.64	<0.64	<40	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64
1,2-Dichloropropane	186	<0.87	<0.87	<2.2	<220	<0.87	<0.87	<0.87	<2.2	<2.2	<0.87	<2.2	17[1]	<0.87	<0.87	<8.7	<0.87	<0.87	<0.87	<0.87	<0.87	<55	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87
Trichloroethene	822	<0.74	<0.74	4.2	<190	2.9	<0.75	1.1	<1.9	<1.9	1.3	66	<19	270	9.1	<7.5	3.4	350	**850**	690	4.4	<47	33	<0.74	<0.74	<0.74	0.78	<0.74
1,1,2-Trichloroethane	440	<0.73	<0.73	<1.8	<180	<0.73	<0.74	<0.73	<1.8	<1.9	<0.74	<1.8	<18	<0.74	<0.74	<7.4	<0.73	<0.73	<0.73	<0.73	<0.73	<46	<0.74	<0.73	<0.73	<0.73	<0.73	<0.73
Toluene	21,200	4.6	2.3	2.3[1]	<270	2.3	4.0	5.2	7.7	4.6	15	4.4	<27	4.8	6.0	6.4[1]	3.2	4.3	3.5	5.7	2.4	<66	6.7	1.9	2.6	1.3	3.1	2.4
1,2-Dibromoethane	6	<0.52	<0.52	<1.3	<130	<0.52	<0.53	<0.52	<1.3	<1.3	<0.53	<1.3	<13	<0.53	<0.53	<5.3	<0.52	<0.52	<0.52	<0.52	<0.52	<33	<0.53	<0.52	<0.52	<0.52	<0.52	<0.52
Tetrachloroethene	1,064	7.4	0.86	26	<150	19	1.7	2.6	1.1[1]	3.3	28	1.3[1]	40	6.6	14	4.1[1]	100	17	83	24	7.2	<37	13	<0.59	0.68	1.7	7.3	19
Ethylbenzene	49,000	<0.92	<0.92	<2.3	<230	<0.92	<0.92	0.74[1]	<2.3	<2.3	1.1	<2.3	390	<0.92	0.93	45	0.59[1]	0.78[1]	<0.92	1.2	<0.92	51[1]	1.2	<0.92	<0.92	<0.92	<0.92	<0.92
m- & p-Xylenes	14,280	1.2	1.6	2.4	<230	1.3	2.0	3.1	3.8	2.1[1]	4.9	2.9	530	2.0	3.9	190	2.6	3.3	1.9	4.7	1.7	<58	5.4	1.2	1.3	0.71[1]	2.4	1.8
o-Xylene	14,280	<0.92	0.66[1]	<2.3	<230	<0.92	0.89[1]	1.3	1.9[1]	<2.3	2.8	1.4[1]	890	0.81[1]	1.7	<9.2	1.1	1.5	0.84[1]	2.1	0.69[1]	<58	2.4	<0.92	<0.92	<0.92	1.1	0.73[1]

(1) Detected Below Indicated Reporting Limit.
(2) Well 50 not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above laboratory detection limits

TRC

TABLE 3.13

VAPOR WELL ANALYTICAL DATA FOR JULY 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																											
		WDI-VAPOR WELL - PROBE DEPTH (feet)																											
		29-10	29-23	29-35	30-07	30-23	30-35	31-10	31-30	32-08	32-18	32-35	33-10	33-35	34-10	34-23	34-40	35-10	35-38	36-10	36-30	37-10	37-30	38-10	38-34	39-07	39-30	40-10	40-25
Nonmethane Organics as methane/ppm		47	52	83	100	140	150	64	88	44	93	100	110	32	80	110	110	67	95	59	98	50	100	71	740	78	83	78	79
Methane/ppm	12,500	1.2	<0.50	0.71	1.5	1,300	3,300	<0.50	<0.50	1.5	<0.50	<0.50	2.1	3.0	1.3	3.1	1.4	1.0	7.8	2.0	<0.50	3.9	950	2.6	260	1.0	0.85	**18,300**	**<0.50**
Vinyl chloride	25	<1.6	<1.6	<1.6	<1.6	<1.6	1.3(1)	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	3.7	<1.6	<7.9	<7.9	<1.6	<1.6	<1.6
Chloroethane	75,200	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	1.3(1)	<1.5	<1.5	<7.6	<7.6	<1.5	<1.5	<1.5
Acetone	31,200	<1.7	2.2	2.4	2.6	<1.7	<1.7	<1.7	<1.7	3.5	1.8	2.4	3.1	6.8	4.6	2.7	3.4	5.1	2.3	5.0	2.0	8.6	<1.7	6.1	<8.4	6.5(1)	4.5	<1.7	5.0
trans-1,2-Dichloroethene	3,680	<1.0	<1.0	<1.0	<1.0	1.3	6.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.1	<5.1	<1.0	<1.0	<1.0
1,1-Dichloroethane	25,600	<0.99	<0.99	<0.99	2.6	<1.0	<1.0	<1.0	<1.0	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<1.0	2.1	<1.0	<1.0	1.3	<1.0	<1.0	<5.0	17	0.95(1)	2.4	<0.99
cis-1,2-Dichloroethene	1,860	<1.0	<1.0	<1.0	<1.0	4.0	12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.1	<5.1	<1.0	1.9	<1.0
Chloroform	340	<0.82	<0.82	1.5	0.54(1)	<0.83	<0.83	<0.83	<0.83	0.50(1)	0.51(1)	1.8	2.3	<0.82	<0.82	1.1	2.0	0.67(1)	43	<0.83	3.2	<0.83	<0.83	<0.83	<4.1	<4.1	<0.83	0.76(1)	<0.82
1,2-Dichloroethane	360	<0.99	<0.99	<0.99	<1.0	<1.0	<1.0	<1.0	<1.0	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<1.0	3.5	2.1	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	4.1	<0.99
1,1,1-Trichloroethane	36,800	48	<0.73	<0.73	360	1.9	<0.74	2.0	0.55(1)	9.4	5.6	2.8	120	1.8	130	4.7	0.53(1)	19	4.9	3.1	<0.74	320	1.9	68	<3.7	240	50	18	2.1
Benzene	200	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	1.6	0.94(1)	<1.3	1.6	0.80(1)	0.84(1)	<6.3	<6.3	0.91(1)	28	<1.3
Carbon Tetrachloride	68	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<3.2	<3.2	<0.64	<0.64	<0.64
1,2-Dichloropropane	186	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<4.4	<4.4	<0.87	<0.87	<0.87
Trichloroethene	822	<0.74	<0.74	<0.74	1.0	10	23	<0.75	4.9	<0.74	<0.74	0.65(1)	0.94	16	<0.74	<0.74	4.1	67	1,200	<0.75	<0.75	<0.75	<0.75	<0.75	<3.8	<3.8	<0.75	1.1	4.6
1,1,2-Trichloroethane	440	<0.73	<0.73	<0.73	<0.74	<0.74	<0.74	<0.74	<0.74	<0.73	<0.73	<0.73	<0.73	<0.73	<0.73	<0.73	<0.73	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74	<3.7	<3.7	<0.74	<0.73	<0.73
Toluene	21,200	3.3	2.4	2.6	2.2	2.0	2.2	4.7	3.3	1.6	1.2	1.1	2.1	1.7	3.0	2.4	2.7	3.7	2.6	5.6	3.4	7.3	3.5	5.3	3.6(1)	4.1(1)	7.2	4.1	3.5
1,2-Dibromoethane	6	<0.52	<0.52	<0.52	<0.53	<0.53	<0.53	<0.53	<0.53	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<2.6	<2.6	<0.53	<0.52	<0.52
Tetrachloroethene	1,064	1.9	4.8	11	3.1	55	67	16	32	0.72	0.97	1.0	1.5	2.1	2.3	9.2	6.3	3.6	42	1.3	2.1	0.60	1.3	1.5	3.0	9.5	9.5	3.9	150
Ethylbenzene	49,000	<0.92	<0.92	<0.92	<0.92	0.91(1)	<0.92	0.93	0.64(1)	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	1.1	0.65(1)	0.96	0.57(1)	0.97(1)	<4.6	<4.6	1.2	1.2	<0.92
m- & p-Xylenes	14,280	1.7	1.1	1.4	1.2	3.9	1.3	4.1	2.8	1.2	0.93	0.77	1.3	1.3	1.6	0.91(1)	1.4	1.4	1.2	4.6	2.8	3.7	2.2	3.9	<4.6	<4.6	4.8	4.6	2.5
o-Xylene	14,280	<0.92	<0.92	<0.92	<0.92	1.8	<0.92	1.9	1.2	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	2.1	1.3	1.3	0.87(1)	1.6	<4.6	<4.6	2.0	2.1	1.1

(1) Detected Below Indicated Reporting Limit.
(2) Well 50 not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above laboratory detection limits

TRC

TABLE 3.13

VAPOR WELL ANALYTICAL DATA FOR JULY 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																											
		WDI-VAPOR WELL - PROBE DEPTH (feet)																											
		41-08	41-20	42-10	42-30	43-09	43-19	43-32	44-07	44-16	44-30	45-12	45-22	45-30	46-07	46-15	46-27	47-08	47-18	47-30	48-08	48-17	48-35	49-10	49-18	49-30	50-08	50-18	50-35
Nonmethane Organics as methane/ppm		110	98	45	89	45	410	440	140	79	150	34,000	14,000	18,000	93	95	110	57	180	130	9,300	40,000	840	120	150	160	(2)	(2)	(2)
Methane/ppm	12,500	<0.50	<0.50	2.0	<0.50	2.9	**22,000**	**23,000**	4,200	1,600	7,260	**213,000**	**90,200**	**27,800**	**17,200**	<0.50	<0.50	1.9	5,000	2,300	**258,000**	**592,000**	**27,500**	5.4	20	10			
Vinyl chloride	25	<1.6	<1.6	<1.6	<1.6	<1.6	**240**	**280**	<3.9	1.7	**59**	**55**	**87**	<39	2.6	<1.6	<1.6	<1.6	<1.6	<1.6	**750**	<780	<20	<1.6	<1.6	<1.6			
Chloroethane	75,200	<1.5	<1.5	<1.5	<1.5	<1.5	<7.6	<7.6	<3.8	<1.5	<3.8	<0.76	<0.38	<38	4.6	<1.5	<1.5	<1.5	<1.5	<1.5	<190	<760	<19	<1.5	1.0[1]	<1.5			
Acetone	31,200	3.4	1.9	7.7	3.4	2.9	<8.4	<8.4	<4.2	<1.7	<4.2	<0.84	<0.42	<42	<1.7	4.1	2.3	11	<1.7	6.5	<210	<840	<21	8.4	5.7	4.7			
trans-1,2-Dichloroethene	3,680	<1.0	<1.0	<1.0	<1.0	<1.0	4.7[1]	5.1	<2.5	<1.0	<2.5	10	5.6	<25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<130	<500	<13	<1.0	<1.0	<1.0			
1,1-Dichloroethane	25,600	<0.99	<0.99	<0.99	<0.99	<1.0	<5.0	<5.0	3.4	3.4	25	<0.50	<0.25	<25	190	2.9	<0.99	<0.99	<0.99	<0.99	<120	<490	<12	10	0.78[1]	0.66[1]			
cis-1,2-Dichloroethene	1,860	<1.0	<1.0	<1.0	<1.0	<1.0	71	180	<2.5	<1.0	<2.5	11	1.4	<25	4.4	<1.0	<1.0	<1.0	<1.0	<1.0	100[1]	<500	<13	0.99[1]	<1.0	<1.0			
Chloroform	340	<0.82	<0.82	38	<0.82	0.85	<4.1	<4.1	<2.1	<0.83	<2.1	<0.41	<0.21	<21	<0.82	0.87	1.1	0.55[1]	<0.82	<0.82	<100	<410	<10	<0.82	<0.82	<0.82			
1,2-Dichloroethane	360	<0.99	<0.99	<0.99	<0.99	<1.0	<5.0	<5.0	<2.5	<1.0	<2.5	<0.50	<0.25	<25	3.4	<0.99	<0.99	<0.99	3.6	<0.99	<120	<490	<12	<0.99	<0.99	<0.99			
1,1,1-Trichloroethane	36,800	23	15	<0.73	<0.73	6.7	<3.7	<3.7	78	64	<1.9	<0.37	<0.19	<19	280	68	6.9	<0.73	<0.73	<0.73	<92	<370	<9.2	42	5.1	<0.73			
Benzene	200	<1.3	<1.3	<1.3	<1.3	<1.3	12	11	<3.1	0.98[1]	<3.1	9.9	4.7	<31	7.1	<1.3	<1.3	<1.3	1.2[1]	<1.3	**820**	**4,200**	<16	1.5	0.93[1]	<1.3			
Carbon Tetrachloride	68	<0.64	<0.64	<0.64	<0.64	<0.64	<3.2	<3.2	<1.6	<0.64	<1.6	<0.32	<0.16	<16	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<80	<320	<8.0	<0.64	<0.64	<0.64			
1,2-Dichloropropane	186	<0.87	<0.87	<0.87	<0.87	<0.87	<4.4	<4.4	<2.2	<0.87	18	<0.44	<0.22	<22	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<110	<430	<11	<0.87	<0.87	<0.87			
Trichloroethene	822	<0.74	<0.74	<0.74	<0.74	3.8	3.1[1]	<3.8	<1.9	<0.75	<1.9	0.26[1]	<0.19	<19	0.86	16	21	<0.74	1.2	1.7	<93	<370	<9.3	4.9	13	7.7			
1,1,2-Trichloroethane	440	<0.73	<0.73	<0.73	<0.73	<0.74	<3.7	<3.7	<1.9	<0.74	<1.9	<0.37	<0.19	<19	<0.73	<0.73	<0.73	<0.73	<0.73	<0.73	<92	<370	<9.2	<0.73	<0.73	<0.73			
Toluene	21,200	2.5	1.8	3.1	2.9	3.3	7.8	3.7[1]	6.9	5.0	3.0	7.2	0.72	<27	11	2.8	2.6	4.2	3.1	3.3	<130	<530	<13	4.7	2.8	3.1			
1,2-Dibromoethane	6	<0.52	<0.52	<0.52	<0.52	<0.53	<2.6	<2.6	<1.3	<0.53	<1.3	<0.26	<0.13	<13	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<65	<260	<6.5	<0.52	<0.52	<0.52			
Tetrachloroethene	1,064	34	14	6.2	9.3	16	4.9	<3.0	1.3[1]	<0.60	<1.5	<0.30	<0.15	<15	1.5	160	190	1.4	3.8	21	<74	<300	15	110	350	290			
Ethylbenzene	49,000	<0.92	<0.92	<0.92	<0.92	<0.92	<4.6	<4.6	<2.3	0.76[1]	<2.3	0.97	<0.23	<23	5.2	<0.92	<0.92	0.61[1]	<0.92	0.68[1]	120	5,400	7.5[1]	0.70[1]	<0.92	<0.92			
m- & p-Xylenes	14,280	0.99	1.1	2.3	2.3	2.3	3.6[1]	4.6[1]	3.9	3.1	<2.3	6.0	<0.23	<23	9.0	1.5	1.4	2.2	1.9	2.6	<120	1,800	<12	3.1	2.1	2.3			
o-Xylene	14,280	<0.92	<0.92	0.91[1]	1.0	0.93	<4.6	<4.6	4.2	4.1	<2.3	2.6	0.52	<23	3.8	<0.92	<0.92	0.78[1]	0.79[1]	1.1	<120	<460	<12	1.3	0.95	0.93			

(1) Detected Below Indicated Reporting Limit.
(2) Well 50 not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above laboratory detection limits

TRC

TABLE 3.13

VAPOR WELL ANALYTICAL DATA FOR JULY 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																										
		WDI-VAPOR WELL - PROBE DEPTH (feet)																										
		51-18	51-30	52-10	52-19	52-30	53-10	53-20	53-30	MP-1-05	MP-1-15	MP-2-05	MP-2-15	03-35d	04-23fd	06-34fd	06-34d	08-30d	10-35fb	11-35fd	13-31fd	13-31d	14-35d	16-34fb	17-35d	20-35d	24-35fd	26-35d	27-35fb
Nonmethane Organics as methane/ppm		1,900	390	240	120	98	660	190	140	100	2,200	70	7,400	170	21,000	80	88	(3)	6.4	180	220	250	470	<1.0	87	(3)	110	76	<1.0
Methane/ppm	12,500	**241,000**	78	32	<0.50	<0.50	8,400	2,100	910	2.3	**680,000**	4.0	**743,000**		**170,000**	1,300	1,300		<0.50	**14,800**	7,400	7,480	110	<0.50	<0.50		<0.50	1.3	<0.50
Vinyl chloride	25	<200	4.4	<7.8	<1.6	<1.6	14[1]	21	7.0[1]	<2.6	<470	<1.6	<780		<390	<1.6	<1.6	<1.6	<1.6	6.5	**36**			<1.6		<1.6	<1.6	<1.6	<1.6
Chloroethane	75,200	<190	<3.8	<7.6	<1.5	<1.5	<10	<7.6	<7.6	<2.5	<450	<1.5	<760		<380	<1.5	<1.5	<1.5	<1.5	<3.8	<3.8			<1.5		<1.5	<1.5	<1.5	<1.5
Acetone	31,200	<210	<4.2	14	6.0	4.1	<17	<8.4	<8.4	2.6[1]	<510	1.9	<840		<420	<1.7	<1.7	3.3	3.9	<4.2	<4.2			4.0		8.5	2.0	2.5	2.6
trans-1,2-Dichloroethene	3,680	<130	73	<5.0	<1.0	<1.0	9.7[1]	56	18	<1.7	<300	<1.0	<500		<250	<1.0	<1.0	<1.0	<1.0	<2.5	9.8			<1.0		<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	25,600	<120	15	40	140	27	13	27	23	<1.6	<300	<0.99	<490		<250	<1.0	<1.0	<0.99	<0.99	<2.5	<2.5			<1.0		<0.99	<0.99	2.3	<0.99
cis-1,2-Dichloroethene	1,860	<130	160	<5.0	3.9	<1.0	88	160	82	<1.7	<300	<1.0	<500		<250	<1.0	<1.0	<1.0	<1.0	<2.5	50			<1.0		<1.0	<1.0	46	<1.0
Chloroform	340	<100	<2.0	<4.1	<0.82	0.76[1]	<8.3	<4.1	3.6[1]	<1.4	<250	<0.82	<410		<200	<0.83	<0.83	<0.82	<0.82	<2.1	<2.0			<0.83		<0.82	<0.82	<0.83	<0.82
1,2-Dichloroethane	360	<120	<2.5	<4.9	<0.99	<0.99	<10.0	<5.0	<5.0	<1.6	<300	<0.99	<490		<250	<1.0	<1.0	<0.99	<0.99	<2.5	<2.5			<1.0		<0.99	<0.99	<1.0	<0.99
1,1,1-Trichloroethane	36,800	<92	<1.8	<3.7	0.70[1]	0.49[1]	7.1[1]	<3.7	<3.7	12	<220	<0.73	<370		<180	<0.74	<0.74	<0.73	<0.73	<1.9	<1.8			<0.74		<0.73	<0.73	0.70[1]	<0.73
Benzene	200	**2,900**	27	<6.3	2.4	<1.3	16	<6.3	<6.3	<2.1	**410**	<1.3	**20,000**		**850**	0.92[1]	0.90[1]	<1.3	7.4	<3.1	3.5			15		<1.3	<1.3	0.96[1]	32
Carbon Tetrachloride	68	<80	<1.6	<3.2	<0.64	<0.64	<6.4	<3.2	<3.2	<1.1	<190	<0.64	<320		<160	<0.64	<0.64	<0.64	<0.64	<1.6	<1.6			<0.64		<0.64	<0.64	<0.64	<0.64
1,2-Dichloropropane	186	<110	<2.2	12	94	9.4	<8.7	<4.4	<4.4	<1.4	<260	<0.87	<430		<220	<0.87	<0.87	<0.87	<0.87	<2.2	<2.2			<0.87		<0.87	<0.87	<0.87	<0.87
Trichloroethene	822	<93	300	<3.7	5.6	3.5	34	**1,000**	790	<1.2	<220	4.7	<370		<190	<0.75	<0.75	1.1	<0.74	1.2[1]	64			<0.75		3.5	4.2	33	<0.74
1,1,2-Trichloroethane	440	<92	<1.8	<3.7	<0.73	<0.73	<7.4	<3.7	<3.7	<1.2	<220	<0.73	<370		<180	<0.74	<0.74	<0.73	<0.73	<1.9	<1.8			<0.74		<0.73	<0.73	<0.74	<0.73
Toluene	21,200	<130	1.9[1]	5.3	3.4	1.7	<11	<5.3	<5.3	2.0	<320	1.3	<530		<270	3.5	3.5	5.2	2.7	4.3	4.6			1.3		3.3	2.5	6.7	1.4
1,2-Dibromoethane	6	<65	<1.3	<2.6	<0.52	<0.52	<5.3	<2.6	<2.6	<0.87	<160	<0.52	<260		<130	<0.53	<0.53	<0.52	<0.52	<1.3	<1.3			<0.53		<0.52	<0.52	<0.53	<0.52
Tetrachloroethene	1,064	<74	**1,400**	2.8[1]	99	89	<6.0	34	33	7.1	<180	150	<300		<150	1.5	1.5	2.6	<0.59	3.4	0.95[1]			<0.60		99	7.4	13	<0.59
Ethylbenzene	49,000	810	<2.3	<4.6	0.68[1]	<0.92	<9.2	<4.6	<4.6	<1.5	<280	<0.92	<460		<230	0.66[1]	0.69[1]	0.71[1]	0.65[1]	<2.3	<2.3			0.48[1]		0.61[1]	<0.92	1.3	<0.92
m- & p-Xylenes	14,280	410	1.8[1]	<4.6	2.5	1.3	<9.2	3.8[1]	<4.6	1.1[1]	<280	0.84[1]	<460		<230	2.8	2.8	3.1	2.5	1.9[1]	3.3			1.7		2.6	2.0	5.4	1.3
o-Xylene	14,280	190	<2.3	<4.6	0.99	<0.92	<9.2	<4.6	<4.6	<1.5	<280	<0.92	<460		<230	1.3	1.2	1.3	1.2	<2.3	1.6[1]			0.90[1]		1.1	0.84[1]	2.4	0.75[1]

(1) Detected Below Indicated Reporting Limit.
(2) Well 50 not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above laboratory detection limits

TRC

TABLE 3.13

VAPOR WELL ANALYTICAL DATA FOR JULY 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																							
		WDI-VAPOR WELL - PROBE DEPTH (feet)																							
		28-10d	29-23d	30-23d	33-35d	34-40fb	34-40d	35-10d	36-10d	37-30fd	37-30d	40-25d	41-20d	45-12d	46-07d	47-08d	49-18fd	49-18d	51-30fd	51-30fb	52-10d	53-20d	53-30d	53-30fb	MP-1-5d
Nonmethane Organics as methane/ppm		(3)	(3)	140	(3)	<1.0	(3)	(3)	52	100	(3)	87	(3)	33,000	(3)	62	180	140	400	<1.0	230	(3)	140	<1.0	100
Methane/ppm	12,500			1,200		<0.50			4.1	950		<0.50		**220,000**		2.0	4,900	20	79	<0.50	31		900	<0.50	2.2
Vinyl chloride	25	<1.6	<1.6		<1.6	<1.6	<1.6	<1.6	<1.6	3.8	3.7		<1.6		2.5		<1.6		4.6	<1.6	<7.8	18		<1.6	
Chloroethane	75,200	<1.5	<1.5		<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5		<1.5		4.8		<1.5		<3.8	<1.5	<7.6	<7.6		1.3[1]	
Acetone	31,200	2.8	2.0		7.2	3.6	3.2	4.9	4.4	<1.7	<1.7		2.0		<1.7		13		<4.2	2.8	14	<8.4		<1.7	
trans-1,2-Dichloroethene	3,680	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		<1.0		<1.0		<1.0		73	<1.0	<5.0	57		<1.0	
1,1-Dichloroethane	25,600	<0.99	<0.99		<0.99	<0.99	<0.99	<1.0	<1.0	<1.0	<1.0		<0.99		190		<0.99		16	<0.99	39	28		<1.0	
cis-1,2-Dichloroethene	1,860	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		<1.0		4.2		<1.0		170	<1.0	<5.0	160		<1.0	
Chloroform	340	1.7	<0.82		<0.82	<0.82	2.0	0.64[1]	<0.83	<0.83	<0.83		<0.82		<0.82		<0.82		<2.0	<0.82	<4.1	<4.1		<0.83	
1,2-Dichloroethane	360	<0.99	<0.99		<0.99	<0.99	<0.99	<1.0	2.2	<1.0	<1.0		<0.99		2.5		3.6		<2.5	<0.99	<4.9	<5.0		<1.0	
1,1,1-Trichloroethane	36,800	23	<0.73		1.7	<0.73	0.50[1]	19	3.0	1.9	1.9		15		280		<0.73		<1.8	<0.73	<3.7	<3.7		<0.74	
Benzene	200	<1.3	<1.3		<1.3	90	<1.3	<1.3	0.94[1]	0.84[1]	0.79[1]		<1.3		7.0		1.2[1]		28	6.8	<6.3	<6.3		10	
Carbon Tetrachloride	68	<0.64	<0.64		<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64		<0.64		<0.64		<0.64		<1.6	<0.64	<3.2	<3.2		<0.64	
1,2-Dichloropropane	186	<0.87	<0.87		<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87		<0.87		<0.87		<0.87		<2.2	<0.87	<4.3	<4.4		<0.87	
Trichloroethene	822	0.65[1]	<0.74		16	<0.74	4.1	66	<0.75	<0.75	<0.75		<0.74		0.83		1.1		300	<0.74	<3.7	**1,000**		<0.75	
1,1,2-Trichloroethane	440	<0.73	<0.73		<0.73	<0.73	<0.73	<0.74	<0.74	<0.74	<0.74		<0.73		<0.73		<0.73		<1.8	<0.73	<3.7	<3.7		<0.74	
Toluene	21,200	3.1	2.5		1.7	1.9	2.7	3.7	5.6	2.7	3.4		1.7		11		3.8		1.7[1]	1.7	5.1[1]	<5.3		0.99[1]	
1,2-Dibromoethane	6	<0.52	<0.52		<0.52	<0.52	<0.53	<0.53	<0.53	<0.53	<0.53		<0.52		<0.52		<0.52		<1.3	<0.52	<2.6	<2.6		<0.53	
Tetrachloroethene	1,064	7.1	4.8		2.2	<0.59	6.2	3.4	1.3	1.4	1.3		14		1.5		3.8		**1,400**	<0.59	2.1[1]	36		<0.60	
Ethylbenzene	49,000	<0.92	<0.92		<0.92	0.65[1]	<0.92	<0.92	1.1	<0.92	0.54[1]		<0.92		5.2		0.87[1]		<2.3	<0.92	<4.6	<4.6		<0.92	
m- & p-Xylenes	14,280	2.5	1.1		1.3	2.0	1.4	1.4	4.6	1.6	2.2		1.1		8.9		2.7		1.9[1]	1.6	<4.6	4.1[1]		<0.92	
o-Xylene	14,280	1.1	<0.92		<0.92	1.1	<0.92	<0.92	2.1	0.57[1]	0.85[1]		<0.92		3.8		1.3		<2.3	0.79[1]	<4.6	<4.6		<0.92	

94-256/Rpts/ReDeInSuRe/Tbls&Figs(new) (4/16/99/rmm)

(1) Detected Below Indicated Reporting Limit.
(2) Well 50 not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above laboratory detection limits

TRC

TABLE 3.14

VAPOR WELL ANALYTICAL DATA FOR OCTOBER 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																										
		WDI VAPOR WELL - PROBE DEPTH (feet)																										
		01-35	02-35	03-35	04-23	05-29	06-34	08-35	10-35	11-35	12-34	13-31	14-35	16-34	17-35	18-36	20-35	21-36	22-35	23-36	24-35	25-35	26-35	27-09	27-19	27-35	28-10	28-25
Nonmethane Organics as methane/ppm		29	150	53	850	90	13	41	90	200	11	330	370	61	63	9,000	21	110	79	120	94	7,500	7.2	93	17	94	42	61
Methane/ppm	12,500	18	890	2,200	**101,000**	<0.50	1.9	1.3	1.2	1.1	1.1	**13,800**	220	0.55	<0.50	6.8	2.2	2.6	0.72	330	2.6	**155,000**	0.80	23	<0.50	<0.50	0.85	<0.50
Vinyl chloride	25	<1.6	<3.9	<1.6	**82**	<3.9	<1.6	<1.6	1.6(1)	<7.8	<1.6	**56**	14	<4.9	<3.9	<200	<3.9	<7.8	<20	<20	<1.6	<200	<3.9	<1.6	<1.6	<1.6	<1.6	<1.6
Chloroethane	75,200	<1.5	<3.8	<1.5	<76	<3.8	<1.5	<1.5	<1.9	<7.6	<1.5	<15	5.1	<4.7	<3.8	<190	<3.8	<7.6	<19	<19	<1.5	<190	<3.8	<1.5	<1.5	<1.5	<1.5	<1.5
Acetone	31,200	4.6	<4.2	<1.7	<84	13	2.5	2.8	<2.1	<8.4	4.8	<17	55	9.8	11	<210	5.5	370	<21	<21	11	280	26	<1.7	9.7	13	5.0	7.7
trans-1,2-Dichloroethene	3,680	<1.0	<2.5	<1.0	<51	<2.5	<1.0	<1.0	<1.3	<5.0	<1.0	18	<2.5	<3.2	<2.5	<130	<2.5	<5.0	<13	<13	<1.0	<130	<2.5	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	25,600	<1.0	<2.5	<1.0	<50	<2.5	<0.99	<0.99	93	5.5	<0.99	<9.9	190	2.3(1)	<2.5	<120	<2.5	<4.9	<12	11(1)	<0.99	<120	2.5	<1.00	<1.00	<1.00	<0.99	<0.99
cis-1,2-Dichloroethene	1,860	<1.0	<2.5	<1.0	<51	<2.5	<1.0	<1.0	32	<5.0	<1.0	120	12	<3.2	<2.5	<130	<2.5	<5.0	<13	27	<1.0	<130	210	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	340	0.53(1)	<2.0	<0.83	<41	<2.0	<0.82	<0.82	<1.0	<4.1	<0.82	<8.2	2.7	3.1	<2.0	<100	<2.0	<4.1	<10	<10	0.97	<100	<2.0	<0.83	<0.83	<0.83	2.6	1.4
1,2-Dichloroethane	360	<1.0	<2.5	<1.0	<50	<2.5	<0.99	<0.99	<1.2	<4.9	<0.99	<9.9	<2.5	<3.1	<2.5	<120	<2.5	<4.9	<12	<12	<0.99	<120	<2.5	<1.00	<1.00	<1.00	<0.99	<0.99
1,1,1-Trichloroethane	36,800	<0.74	<1.8	<0.74	<37	<1.8	<0.73	<0.73	<0.92	<3.7	<0.73	<7.3	<1.9	6.1	150	<93	<1.8	<3.7	<9.2	<9.2	<0.73	<92	1.6(1)	<0.74	1.9	<0.74	4.0	0.91
Benzene	200	<1.3	<3.1	2.8	**450**	<3.1	<1.3	<1.3	1.8	<6.3	<1.3	<13	12	<3.9	<3.1	**740**	<3.1	<6.3	<16	<16	<1.3	<160	<3.1	<1.3	1.6	1.8	<1.3	<1.3
Carbon Tetrachloride	68	<0.64	<1.6	<0.64	<32	<1.6	<0.64	<0.64	<0.80	<3.2	<0.64	<6.4	<1.6	<2.0	<1.6	<80	<1.6	<3.2	<8.0	<8.0	<0.64	<80	<1.6	<0.64	<0.64	<0.64	<0.64	<0.64
1,2-Dichloropropane	186	<0.87	<2.2	<0.87	<44	<2.2	<0.87	<0.87	<1.1	<4.3	<0.87	<8.7	**370**	<2.7	<2.2	<110	<2.2	<4.3	<11	<11	<0.87	<110	<2.2	<0.87	<0.87	<0.87	<0.87	<0.87
Trichloroethene	822	<0.75	<1.9	4.3	<38	2.5	<0.74	2.1	0.70(1)	<3.7	1.0	90	18	300	17	<94	3.7	340	**2,000**	590	31	<93	2.6	<0.75	<0.75	<0.75	0.57(1)	<0.74
1,1,2-Trichloroethane	440	<0.74	<1.8	<0.74	<37	<1.8	<0.73	<0.73	<0.92	<3.7	<0.73	<7.3	<1.9	<2.3	<1.8	<93	<1.8	<3.7	<9.2	<9.2	<0.73	<92	<1.8	<0.74	<0.74	<0.74	<0.73	<0.73
Toluene	21,200	3.3	<2.7	5.6	<53	<2.7	<1.1	1.5	4.6	<5.3	1.5	<11	3.0	<3.3	<2.7	<130	<2.7	<5.3	<13	<13	<1.1	94(1)	<2.7	5.8	3.0	13	2.1	0.92(1)
1,2-Dibromoethane	6	<0.53	<1.3	<0.53	<26	<1.3	<0.52	<0.52	<0.65	<2.6	<0.52	<5.2	<1.3	<1.6	<1.3	<66	<1.3	<2.6	<6.5	<6.5	<0.52	<65	<1.3	<0.53	<0.53	<0.53	<0.52	<0.52
Tetrachloroethene	1,064	9.3	1.0(1)	110	<30	30	0.98	11	4.2	7.4	36	<5.9	89	5.8	21	<75	130	16	110	34	8.2	<74	27	1.9	2.2	2.3	10	24
Ethylbenzene	49,000	<0.92	<2.3	1.0	240	<2.3	<0.92	<0.92	0.93(1)	<4.6	<0.92	<9.2	13	<2.9	<2.3	<120	<2.3	<4.6	<12	<12	<0.92	330	<2.3	1.9	<0.92	8.7	<0.92	<0.92
m- & p-Xylenes	14,280	1.5	1.8(1)	4.2	51	1.5(1)	<0.92	0.91(1)	4.1	<4.6	<0.92	<9.2	23	<2.9	<2.3	<120	<2.3	<4.6	<12	<12	<0.92	91(1)	<2.3	4.4	1.4	49	2.1	<0.92
o-Xylene	14,280	<0.92	<2.3	1.0	<46	<2.3	<0.92	<0.92	1.6	<4.6	<0.92	<9.2	59	<2.9	<2.3	<120	<2.3	<4.6	<12	<12	<0.92	<120	<2.3	1.7	<0.92	21	1.1	<0.92

(1) Detected Below Indicated Reporting Limit.
(2) Well 50 not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million *ppb = parts per billion* d = lab duplicate fd = field duplicate **Bold Numbers** = *concentrations above laboratory detection limits*

TRC

TABLE 3.14

VAPOR WELL ANALYTICAL DATA FOR OCTOBER 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																											
		WDI VAPOR WELL - PROBE DEPTH (feet)																											
		29-10	29-23	29-35	30-07	30-23	30-35	31-10	31-30	32-08	32-18	32-35	33-10	33-35	34-10	34-23	34-40	35-10	35-38	36-10	36-30	37-10	37-30	38-10	38-34	39-07	39-30	40-10	40-25
Nonmethane Organics as methane/ppm		28	47	68	12	32	36	3.5	14	<1.0	5.1	5.4	62	89	44	85	91	50	86	34	81	3.6	<1.0	13	1,300	33	72	140	85
Methane/ppm	12,500	0.99	<0.50	1.3	1.1	14	290	<0.50	0.55	2.0	<0.50	0.93	1.4	1.4	1.5	0.93	1.2	0.53	7.8	1.7	<0.50	2.1	<0.50	2.8	82	2.2	0.67	5,840	<0.50
Vinyl chloride	25	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<7.8	<1.6	<1.6	<1.6	<3.9	<16	<1.6	<3.9	<1.6	<1.6	<1.6	<7.9	<1.6	<1.6	<1.6	<2.6
Chloroethane	75,200	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<7.6	<1.5	<1.5	<1.5	<3.8	<15	<1.5	<3.8	<1.5	<1.5	<1.5	<7.6	<1.5	<1.5	<1.5	<2.5
Acetone	31,200	5.4	8.9	2.8	3.6	<1.7	<1.7	12	9.2	<1.7	16	9.8	<1.7	7.6(1)	<1.7	<1.7	5.7	14	<17	6.1	37	14	4.1	2.8	<8.4	<1.7	<1.7	<1.7	13
trans-1,2-Dichloroethene	3,680	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<2.5	<10	<1.0	<2.5	<1.0	<1.0	<1.0	<5.1	<1.0	<1.0	<1.0	<1.7
1,1-Dichloroethane	25,600	<0.99	<0.99	<0.99	2.0	<1.00	<1.00	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<4.9	<0.99	<0.99	<0.99	<2.5	<9.9	<0.99	<2.5	<0.99	<0.99	0.70(1)	<5.0	13	<0.99	1.5	<1.6
cis-1,2-Dichloroethene	1,860	<1.0	<1.0	<1.0	<1.0	<1.0	0.81(1)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<2.5	<10	<1.0	<2.5	<1.0	<1.0	<1.0	<5.1	<1.0	<1.0	1.7	<1.7
Chloroform	340	<0.82	<0.82	3.2	<0.83	0.59(1)	0.70(1)	<0.82	3.2	<0.82	<0.82	1.00	0.65(1)	5.4	<0.82	1.4	1.7	<2.0	23	<0.82	1.7(1)	<0.82	<0.82	<0.83	<4.1	<0.82	<0.82	<0.82	<1.4
1,2-Dichloroethane	360	<0.99	<0.99	<0.99	<1.00	<1.00	<1.00	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<4.9	<0.99	<0.99	<0.99	<2.5	<9.9	<0.99	<2.5	<0.99	<0.99	<1.00	<5.0	<0.99	<0.99	<0.99	<1.6
1,1,1-Trichloroethane	36,800	9.3	0.51(1)	0.51(1)	50	<0.74	<0.74	<0.73	<0.73	0.72(1)	3.0	7.6	43	2.9(1)	17	0.98	<0.73	12	<7.3	0.54(1)	<1.8	51	<0.73	35	<3.7	84	7.8	15	1.4
Benzene	200	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<6.3	0.79(1)	<1.3	<1.3	<3.1	<13	1.1(1)	<3.1	12	<1.3	<1.3	<6.3	<1.3	<1.3	27	<2.1
Carbon Tetrachloride	68	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<3.2	<0.64	<0.64	<0.64	<1.6	<6.4	<0.64	<1.6	<0.64	<0.64	<0.64	<3.2	<0.64	<0.64	<0.64	<1.1
1,2-Dichloropropane	186	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<4.3	<0.87	<0.87	<0.87	<2.2	<8.7	<0.87	<2.2	<0.87	<0.87	<0.87	3.7(1)	<0.87	<0.87	<0.87	<1.4
Trichloroethene	822	<0.74	<0.74	0.91	<0.75	6.6	17	<0.74	6.3	<0.74	<0.74	1.2	<0.74	250	<0.74	<0.74	3.2	66	**1,700**	<0.74	<1.9	<0.74	<0.74	<0.75	<3.8	<0.74	<0.74	<0.74	2.2
1,1,2-Trichloroethane	440	<0.73	<0.73	<0.73	<0.74	<0.74	<0.74	<0.73	<0.73	<0.73	<0.73	<0.73	<0.73	<3.7	<0.73	<0.73	<0.73	<1.8	<7.3	<0.73	<1.8	<0.73	<0.73	<0.74	<3.7	<0.73	<0.73	<0.73	<1.2
Toluene	21,200	2.1	0.75(1)	0.65(1)	1.7	0.97(1)	1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<5.3	1.5	0.88(1)	0.77(1)	<2.7	<11	2.3	11	43	<1.1	1.4	<5.3	<1.1	<1.1	1.3	1.4(1)
1,2-Dibromoethane	6	<0.52	<0.52	<0.52	<0.53	<0.53	<0.53	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<2.6	<0.52	<0.52	<0.52	<1.3	<5.2	<0.52	<1.3	<0.52	<0.52	<0.53	<2.6	<0.52	<0.52	<0.52	<0.87
Tetrachloroethene	1,064	2.5	7.3	19	2.7	220	250	15	41	0.45(1)	0.46(1)	1.7	1.3	13	1.8	9.2	4.6	4.8	34	1.2	3.1	0.52(1)	1.4	3.3	18	5.2	11	4.0	93
Ethylbenzene	49,000	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<4.6	<0.92	<0.92	<0.92	<2.3	<9.2	<0.92	3.6	3.7	<0.92	<0.92	<4.6	<0.92	<0.92	<0.92	<1.5
m- & p-Xylenes	14,280	1.1	<0.92	<0.92	0.84(1)	0.62(1)	0.70(1)	<0.92	<0.92	<0.92	<0.92	<0.92	0.60(1)	<4.6	1.7	1.7	0.69(1)	<2.3	<9.2	1.7	17	31	<0.92	1.3	<4.6	<0.92	<0.92	1.9	<1.5
o-Xylene	14,280	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<4.6	0.59(1)	0.94	<0.92	<2.3	<9.2	0.63(1)	7.1	9.6	<0.92	<0.92	<4.6	<0.92	<0.92	<0.92	<1.5

(1) Detected Below Indicated Reporting Limit.
(2) Well 50 not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above laboratory detection limits

TRC

TABLE 3.14

VAPOR WELL ANALYTICAL DATA FOR OCTOBER 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																											
		WDI VAPOR WELL - PROBE DEPTH (feet)																											
		41-08	41-20	42-10	42-30	43-09	43-19	43-32	44-07	44-16	44-30	45-12	45-22	45-30	46-07	46-15	46-27	47-08	47-18	47-30	48-08	48-17	48-35	49-10	49-18	49-30	50-08	50-18	50-35
Nonmethane Organics as methane/ppm		22	12	41	76	43	460	450	110	55	120	64,000	13,000	910	150	35	32	37	100	110	9,200	50,000	710	82	82	84	3.4	7.4	24
Methane/ppm	12,500	0.59	<0.50	1.3	<0.50	40	**18,100**	**14,100**	1,200	3.1	2.8	**260,000**	**101,000**	11,200	**46,500**	<0.50	<0.50	1.6	4.0	0.58	**155,000**	**517,000**	**16,600**	15	1.4	1.0	1.2	<0.50	<0.50
Vinyl chloride	25	<1.6	<1.6	<1.6	<1.6	<1.6	**430**	**530**	<3.9	<3.9	<20	**140,000**	**38,000**	**99**	4.8	<1.6	<1.6	<1.6	<3.9	<3.9	**490**	<2,200	<20	<3.9	<3.9	<3.9	<1.6	<1.6	<1.6
Chloroethane	75,200	<1.5	<1.5	<1.5	<1.5	<1.5	<15	<15	<3.8	<3.8	<19	<3,800	<760	<38	1.7	<1.5	<1.5	<1.5	<3.8	<3.8	<380	<1,900	<19	<3.8	<3.8	<3.8	<1.5	<1.5	<1.5
Acetone	31,200	34	3.0	7.1	5.8	2.7	<17	<17	42	13	<21	<4,200	<840	<42	<1.7	14	6.4	3.5	8.6	6.1	<420	<2,100	<21	9.8	7.9	35	4.4	27	3.4
trans-1,2-Dichloroethene	3,680	<1.0	<1.0	<1.0	<1.0	<1.0	8.6[1]	8.2[1]	<2.5	<2.5	<13	**9,700**	2,800	<25	<1.0	<1.0	<1.0	<1.0	<2.5	<2.5	<250	<1,300	<13	<2.5	<2.5	<2.5	<1.0	<1.0	<1.0
1,1-Dichloroethane	25,600	<0.99	<0.99	<0.99	<0.99	<0.99	<10	<9.9	<2.5	2.7	79	<2,500	<490	<25	93	3.2	<1.00	<0.99	<2.5	<2.5	<250	<1,200	<12	2.5	<2.5	<2.5	<1.0	<1.0	1.1
cis-1,2-Dichloroethene	1,860	<1.0	<1.0	<1.0	<1.0	<1.0	<10	340	<2.5	<2.5	<13	**7,700**	1,300	<25	13	<1.0	<1.0	<1.0	<2.5	<2.5	<250	<1,300	<13	3.7	4.1	<2.5	<1.0	<1.0	6.5
Chloroform	340	<0.82	<0.82	5.0	<0.82	<0.82	<8.2	<8.2	<2.0	<2.0	<10	<2,000	<410	<20	<0.83	1.0	1.3	<0.82	3.3	<2.0	<200	<1,000	<10	<2.1	<2.1	<2.1	<0.83	<0.83	1.2
1,2-Dichloroethane	360	<0.99	<0.99	<0.99	<0.99	<0.99	<9.9	<9.9	<2.5	<2.5	<12	<2,500	<490	<25	<1.00	<1.00	<1.00	<0.99	<2.5	<2.5	<250	<1,200	<12	<2.5	<2.5	<2.5	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	36,800	17	16	<0.73	<0.73	0.87	<7.3	<7.3	7.2	78	690	<1,800	<370	<18	23	78	7.4	<0.73	<1.8	<1.8	<180	<920	<9.2	7.2	<1.9	<1.9	8.9	3.0	1.9
Benzene	200	<1.3	<1.3	1.7	4.3	<1.3	11[1]	23	<3.1	<3.1	<16	**32,000**	**1,800**	32	11	<1.3	<1.3	<1.3	<3.1	<3.1	**1,300**	**4,200**	<16	<3.1	<3.1	<3.1	<1.3	<1.3	<1.3
Carbon Tetrachloride	68	<0.64	<0.64	<0.64	<0.64	<0.64	<6.4	<6.4	<1.6	<1.6	<8.0	<1,600	<320	<16	<0.64	<0.64	<0.64	<0.64	<1.6	<1.6	<160	<800	<8.0	<1.6	<1.6	<1.6	<0.64	<0.64	<0.64
1,2-Dichloropropane	186	<0.87	<0.87	<0.87	<0.87	<0.87	<8.7	<8.7	<2.2	<2.2	<11	<2,200	<430	<22	<0.87	<0.87	<0.87	<0.87	<2.2	<2.2	<220	<1,100	<11	<2.2	<2.2	<2.2	<0.87	<0.87	<0.87
Trichloroethene	822	<0.74	<0.74	<0.74	0.93	6.1	<7.4	<7.4	<1.9	<1.9	<9.3	<1,900	<370	<19	<0.75	22	29	<0.74	<1.9	1.2[1]	<190	<930	15	38	52	31	<0.75	<0.75	**6.3**
1,1,2-Trichloroethane	440	<0.73	<0.73	<0.73	<0.73	<0.73	<7.3	<7.3	<1.8	<1.8	<9.2	<1,800	<370	<18	<0.74	<0.74	<0.74	<0.73	<1.8	<1.8	<180	<920	<9.2	<1.9	<1.9	<1.9	<0.74	<0.74	<0.74
Toluene	21,200	<1.1	<1.1	3.8	25	<1.1	8.6[1]	<11	3.7	3.8	<13	**39,000**	600	<27	15	2.0	1.4	<1.1	<2.7	<2.7	<270	<1,300	<13	2.2[1]	2.4[1]	2.0[1]	1.7	1.5	0.85[1]
1,2-Dibromoethane	6	<0.52	<0.52	<0.52	<0.52	<0.52	<5.2	<5.2	<1.3	<1.3	<6.5	<1,300	<260	<13	<0.53	<0.53	<0.53	<0.52	<1.3	<1.3	<130	<650	<6.5	<1.3	<1.3	<1.3	<0.53	<0.53	<0.53
Tetrachloroethene	1,064	62	27	8.5	13	18	7.0	<5.9	1.7	1.7	<7.4	<1,500	<300	24	<0.60	210	230	2.0	75	13	<150	<740	52	210	540	530	2.3	2.8	**10**
Ethylbenzene	49,000	<0.92	<0.92	<0.92	2.5	<0.92	<9.2	<9.2	<2.3	<2.3	<12	6,000	<460	<23	12	<0.92	<0.92	<0.92	<2.3	<2.3	<230	6,500	<12	<2.3	<2.3	2.0[1]	<0.92	0.65[1]	<0.92
m- & p-Xylenes	14,280	<0.92	<0.92	2.5	11	<0.92	7.7[1]	6.1[1]	2.1[1]	<2.3	<12	**23,000**	570	21[1]	23	1.4	0.70[1]	<0.92	<2.3	<2.3	<230	3,900	<12	2.4	<2.3	11	1.0	1.3	<0.92
o-Xylene	14,280	<0.92	<0.92	0.70[1]	3.2	<0.92	<9.2	<9.2	<2.3	<2.3	<12	6,800	360[1]	<23	8.4	<0.92	<0.92	<0.92	<2.3	<2.3	<230	<1,200	<12	<2.3	<2.3	1.6[1]	<0.92	<0.92	<0.92

(1) Detected Below Indicated Reporting Limit.
(2) Well 50 not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above laboratory detection limits

TRC

TABLE 3.14

VAPOR WELL ANALYTICAL DATA FOR OCTOBER 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																											
		WDI VAPOR WELL - PROBE DEPTH (feet)																											
		51-18	51-30	52-10	52-19	52-30	53-10	53-20	53-30	54-12	54-20	54-30	55-05	55-18	55-29	56-08	56-17	56-28	57-07	57-18	57-26	58-08	58-18	58-29	59-07	59-17	59-27	60-10	60-18
Nonmethane Organics as methane/ppm		19,000	1,000	180	32	24	2,400	42	110	9.5	48	16	2,100	770	400	37	37	40	2.1	33	35	26	110	100	7.3	22	29	4.9	23
Methane/ppm	12,500	**328,000**	**13,300**	140	0.70	<0.50	7,700	18	31	62	8,350	4,900	**119,000**	9,930	8,760	20	3.1	1.8	39	11	13	1.3	<0.50	0.53	5.8	1.0	1.7	1.9	0.54
Vinyl chloride	25	<790	16(1)	<3.9	<1.6	<1.6	<78	<3.9	<16	<1.6	<1.6	<1.6	<78	**87**	**82**	18	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<3.9	<3.9	<1.6	<1.6	<1.6	<1.6	<1.6
Chloroethane	75,200	<760	<19	6.2	<1.5	<1.5	<76	<3.8	<15	<1.5	<1.5	<1.5	<76	<19	<15	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<3.8	<3.8	<1.5	<1.5	<1.5	<1.5	<1.5
Acetone	31,200	<840	<21	15	100	6.3	<84	<4.2	<17	<1.7	<1.7	38	<84	<21	<17	<1.7	4.1	5.0	13	<1.7	<1.7	4.5	6.6	7.6	12	12	8.1	5.8	11
trans-1,2-Dichloroethene	3,680	<510	110	<2.5	<1.0	<1.0	<50	<2.5	<10	<1.0	<1.0	<1.0	<50	63	61	15	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	5.2	<2.5	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	25,600	<500	12(1)	69	74	85	<49	3.6	12	<0.99	<0.99	<0.99	<49	9.6(1)	7.6(1)	10	8.4	9.1	<1.00	6.8	11	<1.00	1.8(1)	1.9(1)	<0.99	<0.99	<0.99	<0.99	4.1
cis-1,2-Dichloroethene	1,860	<510	180	<2.5	5.4	4.1	71	9.5	7.4(1)	<1.0	8.8	2.7	<50	230	250	320	36	18	<1.0	3.0	2.8	<1.0	3.0	1.9(1)	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	340	<410	<10	<2.1	3.4	9.0	<41	<2.0	<8.2	<0.82	<0.82	<0.82	<41	<10	<8.2	<0.83	15	19	<0.83	2.1	4.4	4.9	9.4	8.9	<0.82	<0.82	<0.82	<0.82	<0.82
1,2-Dichloroethane	360	<500	<12	<2.5	<1.00	<1.00	<49	<2.5	<9.9	<0.99	<0.99	<0.99	<49	<12	<9.9	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.5	<2.5	<0.99	<0.99	<0.99	<0.99	<0.99
1,1,1-Trichloroethane	36,800	<370	<9.3	<1.9	1.9	2.4	<37	<1.8	<7.3	<0.73	<0.73	<0.73	<37	<9.2	<7.3	<0.74	1.8	2.3	<0.74	4.2	7.2	41	37	22	<0.73	<0.73	<0.73	1.9	0.85
Benzene	200	**6,500**	36	3.1(1)	1.1(1)	<1.3	<63	<3.1	<13	<1.3	2.2	4.4	<63	20	8.7(1)	26	1.7	1.3	1.2(1)	0.97(1)	1.3	0.85(1)	<3.1	<3.1	<1.3	<1.3	1.7	<1.3	<1.3
Carbon Tetrachloride	68	<320	<8.0	<1.6	<0.64	<0.64	<32	<1.6	<6.4	<0.64	<0.64	<0.64	<32	<8.0	<6.4	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<1.6	<1.6	<0.64	<0.64	<0.64	<0.64	<0.64
1,2-Dichloropropane	186	<440	<11	27	110	**510**	<43	<2.2	<8.7	<0.87	<0.87	<0.87	<43	<11	<8.7	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<2.2	<2.2	<0.87	<0.87	<0.87	<0.87	<0.87
Trichloroethene	822	<380	400	1.8(1)	16	23	<37	180	840	0.61(1)	4.9	1.3	<37	740	650	140	670	710	10	660	**890**	**3,200**	**5,400**	**4,100**	<0.74	4.4	9.4	4.6	1.1
1,1,2-Trichloroethane	440	<370	<9.3	<1.9	<0.74	<0.74	<37	<1.8	<7.3	<0.73	<0.73	<0.73	<37	<9.2	<7.3	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74	<1.9	<1.9	<0.73	<0.73	<0.73	<0.73	<0.73
Toluene	21,200	<530	<13	7.3	0.93(1)	<1.1	<53	<2.7	<11	1.5	1.7	6.3	<53	<13	<11	1.7	<1.1	0.93(1)	1.2	<1.1	<1.1	1.1	3.7	<2.7	2.1	<1.1	7.6	1.1	<1.1
1,2-Dibromoethane	6	<260	<6.6	<1.3	<0.53	<0.53	<26	<1.3	<5.2	<0.52	<0.52	<0.52	<26	<6.5	<5.2	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<1.3	<1.3	<0.52	<0.52	<0.52	<0.52	<0.52
Tetrachloroethene	1,064	<300	420	9.8	180	190	<30	9.6	55	1.6	<0.59	<0.59	<30	8.4	9.9	52	29	37	3.8	170	210	26	210	190	2.4	35	66	200	47
Ethylbenzene	49,000	1,500	<12	<2.3	<0.92	<0.92	<46	<2.3	<9.2	<0.92	<0.92	<0.92	<46	<12	<9.2	0.84(1)	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<2.3	<2.3	<0.92	<0.92	1.3	<0.92	<0.92
m- & p-Xylenes	14,280	850	<12	4.0	<0.92	<0.92	<46	<2.3	<9.2	0.69(1)	0.64(1)	1.2	<46	<12	<9.2	3.2	<0.92	<0.92	<0.92	<0.92	<0.92	0.76(1)	4.1	<2.3	1.1	<0.92	13	0.75(1)	<0.92
o-Xylene	14,280	<460	<12	<2.3	<0.92	<0.92	<46	<2.3	<9.2	<0.92	<0.92	<0.92	<46	<12	<9.2	0.86(1)	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	1.9(1)	<2.3	<0.92	<0.92	4.4	<0.92	<0.92

(1) Detected Below Indicated Reporting Limit.
(2) Well 50 not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million *ppb = parts per billion* d = lab duplicate *fd = field duplicate* **Bold Numbers** = concentrations above laboratory detection limits

TRC

TABLE 3.14

VAPOR WELL ANALYTICAL DATA FOR OCTOBER 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																										
		WDI VAPOR WELL - PROBE DEPTH (feet)																										
		60-28	61-08	61-19	61-30	62-08	62-18	62-29	63-08	63-18	63-28	MP-1-05	MP-1-15	MP-2-05	MP-2-15	01-35d	01-35fd	02-35d	03-35d	05-29d	08-35d	10-35fd	10-35fdd	14-35d	23-36d	25-35fd	25-35fdd	26-35d	27-35d
Nonmethane Organics as methane/ppm		24	47	320	120	230	98	99	47	36	26	19	47,000	9.6	76,000	28	28	160	(3)	91	40	86	90	360	110	7,200	(3)	6.7	(3)
Methane/ppm	12,500	<0.50	2.2	160	44	**28,600**	1,400	2,200	4,900	<0.50	<0.50	90	**851,000**	4.6	**840,000**	18	18	900		<0.50	1.3	1.6	1.6	220	310	**148,000**		0.82	
Vinyl chloride	25	<1.6	<1.6	55	<3.9	6.9	14	24	5.1	<1.6	<1.6	<1.6	<2,300	<1.6	<1,600		<1.6		<1.6			<7.8				<200	<200		<1.6
Chloroethane	75,200	<1.5	<1.5	<7.6	<3.8	1.6	<3.8	<3.8	<1.5	<1.5	<1.5	<1.5	<2,300	<1.5	<1,500		<1.5		<1.5			<7.6				<190	<190		<1.5
Acetone	31,200	34	12	<8.4	<4.2	7.6	11	5.8	60	8.2	13	<1.7	<2,500	12	<1,700		3.8		<1.7			<8.4				330	210(1)		12
trans-1,2-Dichloroethene	3,680	<1.0	<1.0	<5.0	<2.5	<1.0	<2.5	<2.5	<1.0	<1.0	<1.0	<1.0	<1,500	<1.0	<1,000		<1.0		<1.0			<5.0				<130	<130		<1.0
1,1-Dichloroethane	25,600	5.1	0.67(1)	38	39	<1.00	<2.5	<2.5	<1.00	<1.00	<1.00	<0.99	<1,500	<0.99	<990		<1.00		<1.00			91				<120	<120		<1.00
cis-1,2-Dichloroethene	1,860	<1.0	<1.0	6.5	<2.5	0.92(1)	<2.5	4.4	<1.0	<1.0	<1.0	<1.0	<1,500	<1.0	<1,000		<1.0		<1.0			33				<130	<130		<1.0
Chloroform	340	<0.82	1.3	<4.1	<2.0	<0.83	<2.1	<2.1	<0.83	0.61(1)	0.96	<0.82	<1,200	<0.82	<820		0.54(1)		<0.83			<4.1				<100	<100		<0.83
1,2-Dichloroethane	360	<0.99	<0.99	<4.9	<2.5	<1.00	<2.5	<2.5	<1.00	<1.00	<1.00	<0.99	<1,500	<0.99	<990		<1.00		<1.00			<4.9				<120	<120		<1.00
1,1,1-Trichloroethane	36,800	0.98	1.6	6.8	20	<0.74	<1.9	<1.9	1.1	0.74	1.3	8.5	<1,100	<0.73	<730		<0.74		<0.74			<3.7				<92	<92		<0.74
Benzene	200	<1.3	<1.3	13	<3.1	4.9	<3.1	<3.1	1.1(1)	<1.3	<1.3	<1.3	<1,900	<1.3	**1,300**		<1.3		3.0			<6.3				<160	<160		1.9
Carbon Tetrachloride	68	<0.64	<0.64	<3.2	<1.6	<0.64	<1.6	<1.6	<0.64	<0.64	<0.64	<0.64	<950	<0.64	<640		<0.64		<0.64			<3.2				<80	<80		<0.64
1,2-Dichloropropane	186	<0.87	<0.87	57	24	<0.87	<2.2	<2.2	<0.87	<0.87	<0.87	<0.87	<1,300	<0.87	<870		<0.87		<0.87			<4.3				<110	<110		<0.87
Trichloroethene	822	1.2	2.5	<3.7	2.2	<0.75	<1.9	<1.9	2.4	9.0	18	<0.74	<1,100	<74	<740		<0.75		4.5			<3.7				<93	<93		<0.75
1,1,2-Trichloroethane	440	<0.73	<0.73	<3.7	<1.8	<0.74	<1.9	<1.9	<0.74	<0.74	<0.74	<0.73	<1,100	<0.73	<730		<0.74		<0.74			<3.7				<92	<92		<0.74
Toluene	21,200	<1.1	<1.1	5.7	<2.7	2.7	<2.7	<2.7	1.6	<1.1	<1.1	<1.1	<1,600	<1.1	<1,100		3.0		5.9			<5.3				<130	<130		13
1,2-Dibromoethane	6	<0.52	<0.52	<2.6	<1.3	<0.53	<1.3	<1.3	<0.53	<0.53	<0.53	<0.52	<780	<0.52	<520		<0.53		<0.53			<2.6				<65	<65		<0.53
Tetrachloroethene	1,064	50	38	26	47	<0.60	1.7	<1.5	1.6	93	170	6.6	<890	160	<590		9.3		100			4.0				<74	<74		2.4
Ethylbenzene	49,000	<0.92	<0.92	6.5	<2.3	<0.94	<2.3	<2.3	<0.92	<0.92	<0.92	<0.92	<1,400	<0.92	<920		<0.92		1.1			<4.6				350	300		9.4
m- & p-Xylenes	14,280	0.58(1)	<0.92	15	<2.3	4.5	<2.3	<2.3	1.3	<0.92	<0.92	<0.92	<1,400	<0.92	<920		1.4		4.7			<4.6				<120	<120		51
o-Xylene	14,280	<0.92	<0.92	<4.6	<2.3	1.3	<2.3	<2.3	<0.92	<0.92	<0.92	<0.92	<1,400	<0.92	<920		<0.92		1.1			<4.6				<120	<120		22

(1) Detected Below Indicated Reporting Limit.
(2) Well 50 not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above laboratory detection limits

TRC

TABLE 3.14

VAPOR WELL ANALYTICAL DATA FOR OCTOBER 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)																											
		WDI VAPOR WELL - PROBE DEPTH (feet)																											
		30-35d	30-35fd	31-10fd	31-10d	33-10d	34-10fd	35-10d	35-38d	41-20d	42-10d	43-19d	44-30	45-30fd	47-30d	48-08d	48-35fd	51-30d	52-10fd	53-30d	54-12d	55-29d	56-08d	57-07d	59-07fd	59-27d	60-10d	61-19d	MP-1d
Nonmethane Organics as methane/ppm		33	35	5.1	(3)	65	37	(3)	85	(3)	40	(3)	(3)	860	(3)	9,000	750	(3)	170	(3)	9.4	(3)	37	(3)	6.7	30	(3)	320	17
Methane/ppm	12,500	280	290	<0.50		1.3	1.2		8.1		1.5			11,100			**16,700**		140		65		19		5.5	1.3		150	85
Vinyl chloride	25		<1.6	<1.6	<1.6	<1.6	<1.6	<3.9		<1.6		**430**	<20	**77**	<3.9		<20	15(1)	<3.9	<16		**85**	18	<1.6	<1.6		<1.6		
Chloroethane	75,200		<1.5	<1.5	<1.5	<1.5	<1.5	<3.8		<1.5		<15	<19	<38	<3.8		<19	<19	12	<15		<15	<1.5	<1.5	<1.5		<1.5		
Acetone	31,200		<1.7	9.6	11	<1.7	<1.7	21		2.7		<17	<21	<42	6.3		<21	<21	20	<17		<17	<1.7	12	17		6.0		
trans-1,2-Dichloroethene	3,680		<1.0	<1.0	<1.0	<1.0	<1.0	<2.5		<1.0		8.3(1)	<13	<25	<2.5		<13	110	<2.5	<10		60	16	<1.0	<1.0		<1.0		
1,1-Dichloroethane	25,600		<1.00	<0.99	<0.99	<0.99	<0.99	<2.5		<0.99		<9.9	62	<25	<2.5		<12	14	73	11		8.1(1)	9.7	<1.00	<0.99		<0.99		
cis-1,2-Dichloroethene	1,860		0.85(1)	<1.0	<1.0	<1.0	<1.0	<2.5		<1.0		<10	<13	<25	<2.5		<13	180	<2.5	7.8(1)		250	300	<1.0	<1.0		<1.0		
Chloroform	340		0.64(1)	<0.82	<0.82	0.75(1)	<0.82	<2.0		<0.82		<8.2	<10	<20	<2.0		<10	<10	<2.1	<8.2		<8.2	<0.83	<0.83	<0.82		<0.82		
1,2-Dichloroethane	360		<1.00	<0.99	<0.99	<0.99	<0.99	<2.5		<0.99		<9.9	<12	<25	<2.5		<12	<12	<2.5	<9.9		<9.9	<1.00	<1.00	<0.99		<0.99		
1,1,1-Trichloroethane	36,800		<0.74	<0.73	<0.73	44	31	12		16		<7.3	670	<18	<1.8		<9.2	<9.3	<1.9	<7.3		<7.3	<0.74	<0.74	<0.73		1.9		
Benzene	200		<1.3	<1.3	<1.3	<1.3	1.3	<3.1		<1.3		12(1)	<16	30(1)	<3.1		<16	39	2.8(1)	<13		8.3(1)	24	1.1(1)	<1.3		<1.3		
Carbon Tetrachloride	68		<0.64	<0.64	<0.64	<0.64	<0.64	<1.6		<0.64		<6.4	<8.0	<16	<1.6		<8.0	<8.0	<1.6	<6.4		<6.4	<0.64	<0.64	<0.64		<0.64		
1,2-Dichloropropane	186		<0.87	<0.87	<0.87	<0.87	<0.87	<2.2		<0.87		<8.7	<11	<22	<2.2		<11	<11	29	<8.7		<8.7	<0.87	<0.87	<0.87		<0.87		
Trichloroethene	822		17	<0.74	<0.74	<0.74	<0.74	66		<0.74		<7.4	<9.3	<19	1.3(1)		<9.3	420	1.9(1)	**910**		640	140	9.6	<0.74		4.5		
1,1,2-Trichloroethane	440		<0.74	<0.73	<0.73	<0.73	<0.73	<1.8		<0.73		<7.3	<9.2	<18	<1.8		<9.2	<9.3	<1.9	<7.3		<7.3	<0.74	<0.74	<0.73		<0.73		
Toluene	21,200		1.8	<1.1	<1.1	<1.1	0.88(1)	<2.7		<1.1		8.6(1)	<13	<27	<2.7		<13	<13	6.8	<11		<11	1.5	1.2	<1.1		1.1		
1,2-Dibromoethane	6		<0.53	<0.52	<0.52	<0.52	<0.52	<1.3		<0.52		<5.2	<6.5	<13	<1.3		<6.5	<6.6	<1.3	<5.2		<5.2	<0.53	<0.53	<0.52		<0.52		
Tetrachloroethene	1,064		240	14	15	1.3	2.1	4.9		27		7.3	<7.4	29	13		31	460	7.7	57		9.4	47	3.6	2.5		170		
Ethylbenzene	49,000		<0.92	<0.92	<0.92	<0.92	<0.92	<2.3		<0.92		<9.2	<12	<23	<2.3		<12	<12	<2.3	<9.2		<9.2	0.71(1)	<0.92	<0.92		<0.92		
m- & p-Xylenes	14,280		1.1	0.71(1)	<0.92	0.56(1)	0.64(1)	<2.3		<0.92		7.7(1)	<12	21(1)	<2.3		<12	<12	3.8	<9.2		<9.2	2.7	<0.92	<0.92		0.76(1)		
o-Xylene	14,280		<0.92	<0.92	<0.92	<0.92	<0.92	<2.3		<0.92		<9.2	<12	<23	<2.3		<12	<12	<2.3	<9.2		<9.2	0.73(1)	<0.92	<0.92		<0.92		

(1) Detected Below Indicated Reporting Limit.
(2) Well 50 not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate **Bold Numbers** = concentrations above laboratory detection limits

TRC

TABLE 3.14

VAPOR WELL ANALYTICAL DATA FOR OCTOBER 1998
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	SOIL GAS THRESHOLD LIMIT (ppbv)	WELL IDENTIFICATION AND ANALYTICAL RESULTS (ppbv, unless noted)		
		WDI VAPOR WELL - PROBE DEPTH (feet)		
		62-29d	62-29fd	62-29fdd
Nonmethane Organics as methane/ppm		110	110	110
Methane/ppm	12,500	2,200	2,300	2,300
Vinyl chloride	25		24	
Chloroethane	75,200		<3.8	
Acetone	31,200		6.3	
trans-1,2-Dichloroethene	3,680		<2.5	
1,1-Dichloroethane	25,600		<2.5	
cis-1,2-Dichloroethene	1,860		4.2	
Chloroform	340		<2.1	
1,2-Dichloroethane	360		<2.5	
1,1,1-Trichloroethane	36,800		<1.9	
Benzene	200		<3.1	
Carbon Tetrachloride	68		<1.6	
1,2-Dichloropropane	186		<2.2	
Trichloroethene	822		<1.9	
1,1,2-Trichloroethane	440		<1.9	
Toluene	21,200		<2.7	
1,2-Dibromoethane	6		<1.3	
Tetrachloroethene	1,064		<1.5	
Ethylbenzene	49,000		<2.3	
m- & p-Xylenes	14,280		<2.3	
o-Xylene	14,280		<2.3	

(1) Detected Below Indicated Reporting Limit.
(2) Well 50 not sampled this quarter.
(3) Duplicates may not have been performed on the same sample for each analysis.

ppm = parts per million ppb = parts per billion d = lab duplicate fd = field duplicate
Bold Numbers = concentrations above laboratory detection limits

TRC

TABLE 3.15

AREA 1
CHEMICALS OF CONCERN WHICH EXCEED SOIL GAS INTERIM THRESHOLD LIMITS VAPOR WELL MONITORING WASTE DISPOSAL, INC. SUPERFUND SITE

AREA	VAPOR WELL #	WELL TYPE	WELL LOCATION(1)	MATERIAL TYPE(2)	CONSTITUENT	CONCENTRATION	THRESHOLD LIMIT	DATE OF SAMPLE
1	VW-40	Shallow	P	F	Methane	15,000 ppm	12,500 ppm	Apr-98
					Methane	18,300 ppm	12,500 ppm	Jul-98
	VW-46	Shallow	I	F	Methane	17,200 ppm	12,500 ppm	Jul-98
					Methane	46,500 ppm	12,500 ppm	Oct-98
	VW-62	Shallow	I	F	Methane	28,600 ppm	12,500 ppm	Oct-98
	VW-10	Deep	I	A	Vinyl chloride	150 ppb	25 ppb	Feb-98
					Vinyl chloride	120 ppb	25 ppb	Apr-98
					Vinyl chloride	160 ppb	25 ppb	Jul-98
	VW-11	Deep	I	A	Methane	18,000 ppm	12,500 ppm	Feb-98
					Methane	15,000 ppm	12,500 ppm	Apr-98
					Methane	15,100 ppm	12,500 ppm	Jul-98
	VW-18	Deep	I	A	Benzene	1,600 ppb	200 ppb	Feb-98
					Benzene	420 ppb	200 ppb	Apr-98
					Benzene	740 ppb	200 ppb	Oct-98
	VW-35	Deep	P	N	TCE	1,600 ppb	822 ppb	Feb-98
					TCE	1,500 ppb	822 ppb	Apr-98
					TCE	1,200 ppb	822 ppb	Jul-98
					TCE	1,700 ppb	822 ppb	Oct-98
	VW-44	Deep	I	N	Vinyl Chloride	50 ppb	25 ppb	Feb-98
					Vinyl Chloride	47 ppb	25 ppb	Apr-98
					Vinyl Chloride	59 ppb	25 ppb	Jul-98

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(1) Well Location:
P = Perimeter
I = Interior

(2) Material Type:
F = Fill Material
S = Sump Material
N = Native Material
A = All Material

ppm = parts per million
ppb = parts per billion

RI = Remedial Investigation Well

TRC

TABLE 3.16

AREA 2
CHEMICALS OF CONCERN WHICH EXCEED SOIL GAS INTERIM THRESHOLD LIMITS VAPOR WELL MONITORING WASTE DISPOSAL, INC. SUPERFUND SITE

AREA	VAPOR WELL #	WELL TYPE	WELL LOCATION(1)	MATERIAL TYPE(2)	CONSTITUENT	CONCENTRATION	THRESHOLD LIMIT	DATE OF SAMPLE
2	VW-45	Shallow	I	F	Methane	213,000 ppm	12,500 ppm	Jul-98
					Methane	260,000 ppm	12,500 ppm	Oct-98
					Vinyl Chloride	55 ppb	25 ppb	Jul-98
					Vinyl Chloride	140,000 ppb	25 ppb	Oct-98
					t-1,2 dce	9,700 ppb	3,680 ppb	Oct-98
					c-1,2 dce	7,700 ppb	1,860 ppb	Oct-98
					Benzene	32,000 ppb	200 ppb	Oct-98
					Toluene	39,000 ppb	21,200 ppb	Oct-98
					m & p-xylene	23,000 ppb	14,280 ppb	Oct-98
	VW-48	Shallow	I	F	Methane	365,000 ppm	12,500 ppm	Feb-98
					Methane	258,000 ppm	12,500 ppm	Jul-98
					Methane	155,000 ppm	12,500 ppm	Oct-98
					Vinyl chloride	480 ppb	25 ppb	Feb-98
					Vinyl chloride	750 ppb	25 ppb	Jul-98
					Vinyl chloride	490 ppb	25 ppb	Oct-98
					Benzene	2,200 ppb	200 ppb	Feb-98
					Benzene	820 ppb	200 ppb	Jul-98
					Benzene	1,300 ppb	200 ppb	Oct-98

(1) Well Location:
P = Perimeter
I = Interior

(2) Material Type:
F = Fill Material
S = Sump Material
N = Native Material
A = All Material

ppm = parts per million
ppb = parts per billion

RI = Remedial Investigation Well

TRC

TABLE 3.16

AREA 2
CHEMICALS OF CONCERN WHICH EXCEED SOIL GAS INTERIM THRESHOLD LIMITS VAPOR WELL MONITORING WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

AREA	VAPOR WELL #	WELL TYPE	WELL LOCATION(1)	MATERIAL TYPE(2)	CONSTITUENT	CONCENTRATION	THRESHOLD LIMIT	DATE OF SAMPLE
2 (cont'd)	VW-43	Intermediate	I	N	Methane	15,100 ppm	12,500 ppm	Apr-98
					Methane	22,000 ppm	12,500 ppm	Jul-98
					Methane	18,100 ppm	12,500 ppm	Oct-98
					Vinyl Chloride	120 ppb	25 ppb	Feb-98
					Vinyl Chloride	430 ppb	25 ppb	Apr-98
					Vinyl Chloride	240 ppb	25 ppb	Jul-98
					Vinyl Chloride	430 ppb	25 ppb	Oct-98
	VW-45	Intermediate	I	N	Methane	61,000 ppm	12,500 ppm	Feb-98
					Methane	63,100 ppm	12,500 ppm	Apr-98
					Methane	90,200 ppm	12,500 ppm	Jul-98
					Methane	101,000 ppm	12,500 ppm	Oct-98
					Vinyl Chloride	380 ppb	25 ppb	Feb-98
					Vinyl Chloride	6,500 ppb	25 ppb	Apr-98
					Vinyl Chloride	87 ppb	25 ppb	Jul-98
					Vinyl Chloride	38,000 ppb	25 ppb	Oct-98
					t-1,2 dce	4,700 ppb	3,680 ppb	Apr-98
					c-1,2 dce	8,000 ppb	1,860 ppb	Apr-98
					Benzene	570 ppb	200 ppb	Feb-98
					Benzene	2,800 ppb	200 ppb	Apr-98
					Benzene	1,800 ppb	200 ppb	Oct-98

(1) Well Location:
P = Perimeter
I = Interior

(2) Material Type:
F = Fill Material
S = Sump Material
N = Native Material
A = All Material

ppm = parts per million
ppb = parts per billion

RI = Remedial Investigation Well

TRC

TABLE 3.16

AREA 2
CHEMICALS OF CONCERN WHICH EXCEED SOIL GAS INTERIM THRESHOLD LIMITS
VAPOR WELL MONITORING
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

AREA	VAPOR WELL #	WELL TYPE	WELL LOCATION(1)	MATERIAL TYPE(2)	CONSTITUENT	CONCENTRATION	THRESHOLD LIMIT	DATE OF SAMPLE
2 (cont'd)	VW-48	Intermediate	I	S	Methane	539,000 ppm	12,500 ppm	Feb-98
					Methane	441,000 ppm	12,500 ppm	Apr-98
					Methane	592,000 ppm	12,500 ppm	Jul-98
					Methane	517,000 ppm	12,500 ppm	Oct-98
					Benzene	6,700 ppb	200 ppb	Feb-98
					Benzene	4,100 ppb	200 ppb	Apr-98
					Benzene	4,200 ppb	200 ppb	Jul-98
					Benzene	4,200 ppb	200 ppb	Oct-98
	VW-02	RI	I		Methane	33,000 ppm	12,500 ppm	Feb-98
	VW-03	RI Deep	I		Methane	14,000 ppm	12,500 ppm	Feb-98
					Methane	16,200 ppm	12,500 ppm	Feb-98
	VW-04	RI	I	A	Methane	130,000 ppm	12,500 ppm	Feb-98
					Methane	190,000 ppm	12,500 ppm	Apr-98
					Methane	173,000 ppm	12,500 ppm	Jul-98
					Methane	101,000 ppm	12,500 ppm	Oct-98
					Vinyl Chloride	280 ppb	25 ppb	Apr-98
					Vinyl Chloride	82 ppb	25 ppb	Oct-98
					Benzene	830 ppb	200 ppb	Feb-98
					Benzene	1,100 ppb	200 ppb	Apr-98
					Benzene	890 ppb	200 ppb	Jul-98
					Benzene	450 ppb	200 ppb	Oct-98

(1) Well Location:
P = Perimeter
I = Interior

(2) Material Type:
F = Fill Material
S = Sump Material
N = Native Material
A = All Material

ppm = parts per million
ppb = parts per billion

RI = Remedial Investigation Well

TRC

TABLE 3.16

AREA 2
CHEMICALS OF CONCERN WHICH EXCEED SOIL GAS INTERIM THRESHOLD LIMITS VAPOR WELL MONITORING WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

AREA	VAPOR WELL #	WELL TYPE	WELL LOCATION(1)	MATERIAL TYPE(2)	CONSTITUENT	CONCENTRATION	THRESHOLD LIMIT	DATE OF SAMPLE
2 (cont'd)	VW-43	Deep	I	N	Methane	24,000 ppm	12,500 ppm	Feb-98
					Methane	20,500 ppm	12,500 ppm	Apr-98
					Methane	23,000 ppm	12,500 ppm	Jul-98
					Methane	14,100 ppm	12,500 ppm	Oct-98
					Vinyl Chloride	220 ppb	25 ppb	Feb-98
					Vinyl Chloride	230 ppb	25 ppb	Apr-98
					Vinyl Chloride	280 ppb	25 ppb	Jul-98
					Vinyl Chloride	530 ppb	25 ppb	Oct-98
	VW-45	Deep	I	N	Methane	32,000 ppm	12,500 ppm	Feb-98
					Methane	14,300 ppm	12,500 ppm	Apr-98
					Methane	27,800 ppm	12,500 ppm	Jul-98
					Benzene	380 ppb	200 ppb	Feb-98
	VW-48	Deep	I	N	Methane	37,000 ppm	12,500 ppm	Feb-98
					Methane	31,600 ppm	12,500 ppm	Apr-98
					Methane	27,500 ppm	12,500 ppm	Jul-98
					Methane	16,600 ppm	12,500 ppm	Oct-98

(1) Well Location:
P = Perimeter
I = Interior

(2) Material Type:
F = Fill Material
S = Sump Material
N = Native Material
A = All Material

ppm = parts per million
ppb = parts per billion

RI = Remedial Investigation Well

TRC

TABLE 3.17

AREAS 3, 4 AND 5
CHEMICALS OF CONCERN WHICH
EXCEED SOIL GAS INTERIM THRESHOLD LIMITS
VAPOR WELL MONITORING
WASTE DISPOSAL, INC. SUPERFUND SITE

AREA	VAPOR WELL #	WELL TYPE	WELL LOCATION(1)	MATERIAL TYPE(2)	CONSTITUENT	CONCENTRATION	THRESHOLD LIMIT	DATE OF SAMPLE
4	VW-06	RI	I	A	Methane	53,000 ppm	12,500 ppm	Feb-98
					Vinyl Chloride	55 ppb	25 ppb	Feb-98
5	VW-51	Intermediate	I	S	Methane	386,000 ppm	12,500 ppm	Feb-98
					Methane	234,000 ppm	12,500 ppm	Apr-98
					Methane	241,000 ppm	12,500 ppm	Jul-98
					Methane	328,000 ppm	12,500 ppm	Oct-98
					Benzene	1,200 ppb	200 ppb	Apr-98
					Benzene	2,900 ppb	200 ppb	Jul-98
					Benzene	6,500 ppb	200 ppb	Oct-98
	MP-1	Intermediate	I	A	Methane	73,700 ppm	12,500 ppm	Apr-98
					Methane	680,000 ppm	12,500 ppm	Jul-98
					Methane	851,000 ppm	12,500 ppm	Oct-98
					Benzene	410 ppb	200 ppb	Jul-98
	MP-2	Intermediate	I	A	Methane	743,000 ppm	12,500 ppm	Jul-98
					Methane	644,000 ppm	12,500 ppm	Apr-98
					Methane	840,000 ppm	12,500 ppm	Oct-98
					Benzene	60,000 ppb	200 ppb	Apr-98
					Benzene	20,000 ppb	200 ppb	Jul-98
					Benzene	1,300 ppb	200 ppb	Oct-98
	VW-30	Deep	P	N	Methane	13,000 ppm	12,500 ppm	Apr-98
	VW-51	Deep	I	N	Methane	41,000 ppm	12,500 ppm	Feb-98
					Methane	38,100 ppm	12,500 ppm	Apr-98
					Methane	327,000 ppm	12,500 ppm	Oct-98
					Vinyl Chloride	82 ppb	25 ppb	Feb-98
					Vinyl Chloride	65 ppb	25 ppb	Apr-98
					Benzene	310 ppb	200 ppb	Feb-98
					PCE	1,400 ppb	1,064 ppb	Jul-98

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(1) Well Location:
P = Perimeter
I = Interior

(2) Material Type:
F = Fill Material
S = Sump Material
N = Native Material
A = All Material

ppm = parts per million
ppb = parts per billion

RI = Remedial Investigation Well

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TABLE 3.18

AREAS 7 AND 8
CHEMICALS OF CONCERN WHICH
EXCEED SOIL GAS INTERIM THRESHOLD LIMITS
VAPOR WELL MONITORING
WASTE DISPOSAL, INC. SUPERFUND SITE

AREA	VAPOR WELL #	WELL TYPE	WELL LOCATION(1)	MATERIAL TYPE(2)	CONSTITUENT	CONCENTRATION	THRESHOLD LIMIT	DATE OF SAMPLE
7	VW-25	Deep	I	N	Methane	507,000 ppm	12,500 ppm	Feb-98
					Methane	334,000 ppm	12,500 ppm	Apr-98
					Methane	65,000 ppm	12,500 ppm	Jul-98
					Methane	155,000 ppm	12,500 ppm	Oct-98
8	VW-55	Shallow	I	F, S	Methane	119,000 ppm	12,500 ppm	Oct-98
	VW-58	Shallow	I	F	TCE	3,200 ppb	822 ppb	Oct-98
	VW-53	Intermediate	I	N	TCE	1,000 ppb	822 ppb	Jul-98
	VW-58	Intermediate	I	N	TCE	5,400 ppb	822 ppb	Oct-98
	VW-13	RI	I	A	Methane	13,000 ppm	12,500 ppm	Feb-98
					Methane	13,400 ppm	12,500 ppm	Apr-98
					Methane	13,800 ppm	12,500 ppm	Oct-98
					Vinyl Chloride	29 ppb	25 ppb	Feb-98
					Vinyl Chloride	46 ppb	25 ppb	Apr-98
					Vinyl Chloride	37 ppb	25 ppb	Jul-98
					Vinyl Chloride	56 ppb	25 ppb	Oct-98
	VW-14	RI	I	A	Vinyl Chloride	370 ppb	25 ppb	Feb-98
					Vinyl Chloride	350 ppb	25 ppb	Apr-98
					1,2-Dichloropropane	370 ppb	186 ppb	Oct-98
	VW-22	RI	I	A	TCE	1,400 ppb	822 ppb	Feb-98
					TCE	3,200 ppb	822 ppb	Apr-98
					TCE	850 ppb	822 ppb	Jul-98
					TCE	2,000 ppb	822 ppb	Oct-98

(1) Well Location:
P = Perimeter
I = Interior

(2) Material Type:
F = Fill Material
S = Sump Material
N = Native Material
A = All Material

ppm = parts per million
ppb = parts per billion

RI = Remedial Investigation Well

TRC

TABLE 3.18

AREAS 7 AND 8
CHEMICALS OF CONCERN WHICH
EXCEED SOIL GAS INTERIM THRESHOLD LIMITS
VAPOR WELL MONITORING
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

AREA	VAPOR WELL #	WELL TYPE	WELL LOCATION(1)	MATERIAL TYPE(2)	CONSTITUENT	CONCENTRATION	THRESHOLD LIMIT	DATE OF SAMPLE
8 (cont'd)	VW-23	RI	I	A	Vinyl Chloride	35 ppb	25 ppb	Feb-98
					Vinyl Chloride	40 ppb	25 ppb	Apr-98
					Vinyl Chloride	26 ppb	25 ppb	Jul-98
					TCE	910 ppb	822 ppb	Feb-98
					TCE	850 ppb	822 ppb	Apr-98
	VW-52	Deep	I	N	1,2-Dichloropropane	510 ppb	186 ppb	Oct-98
	VW-53	Deep	I	N	TCE	840 ppb	822 ppb	Oct-98
	VW-55	Deep	I	N	Vinyl Chloride	82 ppb	25 ppb	Oct-98
	VW-57	Deep	I	N	TCE	890 ppb	822 ppb	Oct-98
	VW-58	Deep	I	N	TCE	4,100 ppb	822 ppb	Oct-98

(1) Well Location:
P = Perimeter
I = Interior

(2) Material Type:
F = Fill Material
S = Sump Material
N = Native Material
A = All Material

ppm = parts per million
ppb = parts per billion

RI = Remedial Investigation Well

TRC

TABLE 3.19

IN-BUSINESS AIR MONITORING FREQUENCY
WASTE DISPOSAL, INC. SUPERFUND SITE

SITE AREA	SAMPLE I.D.	COMPANY NAME	ADDRESS	SAMPLE DATES					
				2/8/98	3/8/98	4/5/98	5/3/98	7/26/98	11/8/98
1	WDI-IBM 03B	R&R Sprouts	12633 E. Los Nietos Rd.				X		X
	WDI-IBM 22	E&L Electric(1)	9632 Santa Fe Springs Rd.	X		X			
2	WDI-IBM 24	C&E Die & Fab	12637B Los Nietos Rd.	X	X	X	X	X	X
	WDI-IBM 24Amb	C&E Die & Fab (Ambient Air Sample)	12637B Los Nietos Rd. (outside building)		X	X	X	X	X
5	WDI-IBM 50	Brothers Machine Shop	9843 Greenleaf Ave.	X	X	X	X	X	X
7	WDI-IBM 49	Ambient Air Sample(2)	Southeast Corner of Los Nietos Rd. and Greenleaf Ave.	X	X	X	X	X	X
8	WDI-IBM 03	Stansell Brothers	12635 E. Los Nietos Rd.	X				X	X
	WDI-IBM 12	Bell Auto Body	12469 Los Nietos Rd.						X
	WDI-IBM 24B	Buffalo Bullet	12637A Los Nietos Rd.	X	X	X	X	X	X
	WDI-IBM 32	Davco/Neptune	12757 Los Nietos Rd.			X			
	WDI-IBM 41	H&H Contractors	12811 E. Los Nietos Rd.	X	X	X	X	X	X

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(1) Property purchased by Gold Coast Refractory, 9630 Santa Fe Springs Road in March 1998.
(2) Campbell Property (southeast corner of Area 7).

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TABLE 3.20

CHEMICAL INVENTORY OF ONSITE BUSINESSES
WASTE DISPOSAL, INC. SUPERFUND SITE

BUSINESS	CHEMICAL PRODUCTS USED WITHIN THE BUILDING (from EPA Inventory)	ADDITIONAL CHEMICALS IDENTIFIED DURING IN-BUSINESS AIR MONITORING BY WDIG
Brothers Machine Shop 9843 Greenleaf Avenue Contact: Enrique Razo Date of EPA Inspection: 1/7/98	According to Mr. Razo, the only chemicals used at their facility is hydraulic oil for their machines (Western Basin Soluble Oil) and diesel fuel for their vehicles. Diesel fuel is stored in one 5-gallon gas can in the north corner of the building. There are three 5-gallon containers of oil stored in plastic buckets inside the building. No MSDS was available for review.	Identified several cans of WD-40 spray lubricant which contains methyl ethyl ketone and toluene along with many VOCs.
E&L Electric 9632 Santa Fe Springs Rd. Contact: Mike Fitch Date of EPA Inspection: 1/7/98	The main chemicals used at this building are the Safety-Kleen solvent tank and varnish. The following information was provided in the MSDS for the Safety-Kleen solvent and the varnish: Safety-Kleen 105 Solvent Recycled-California Hazardous Components - hydrotreated light petroleum distillates (Petroleum Naphtha [99 to 100%]); Tetrachloroethene (0 to 0.5%); 1,1,1-Trichloroethane (0 to 0.5%). The Safety - Kleen solvent also contains detectable amounts of benzene, carbon tetrachloride, 1,2-dichlorobenzene, dichloroethane, toluene and trichloroethene. Polyester Resin Solution (varnish) Hazardous component - organic peroxide (1.0% to 1.4% by weight)	E&L Electric was replaced by Gold Coast Refractory. Identified various paints, spray lubricants (WD-40), and foam insulation products. Refractory units operate on some weekends, which may contribute to airborne VOC load.
Buffalo Bullet 12637A Los Nietos Rd. Date of EPA Inspection: 11/20/97 and 1/7/97	(1)	Various cleaning solvents (Safety-Kleen, kerosene and naphtha) used during degreasing.
C&E Die Fab 12637B Los Nietos Rd Contact: Mark Ellis Date of EPA Inspection: 11/20/97	Fifteen gallons of cleaning solvent (UN-1255 Petrolube, Inc.) Cutting oil, 15 gallons of machine oil, 15 gallons of turbine oil, 15 gallons of Metal Working Fluid (Grade 503), 15 gallons of Soluble Oil, 1-gallon of parts cleaning solvent (open can in warehouse).	Identified various cleaning solvents including naphtha, lacquer thinner, kerosene and parts dip. Spray lubricants were also observed.

(1) Only the secretary was at the business at the time of both inspections. Thus, a list of chemical products used within the building was not available.

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TABLE 3.20

CHEMICAL INVENTORY OF ONSITE BUSINESSES
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

BUSINESS	CHEMICAL PRODUCTS USED WITHIN THE BUILDING (from EPA Inventory)	ADDITIONAL CHEMICALS IDENTIFIED DURING IN-BUSINESS AIR MONITORING BY WDIG
Bell Auto Body 12469 Los Nietos Rd. Contact: Luis Reyna Date of EPA Inspection: 1/7/98	According to Mr. Reyna, their facility mostly uses paint, paint thinner, and various oils including WD-40. The business is an autobody shop and is surrounded by used cars, including a car inside the shop.	Various fiberglass resins, acetone and catalysts were observed. Various spray cans containing paints, lubricants and primers were; identified. Gasoline cans were also observed in the building.
R&R Sprouts 12633 Los Nietos Rd. Date of EPA Inspection: 1/7/98	This business grows alfalfa sprouts for juice bars. The only chemicals used at this business is chlorine bleach to clean tanks. No solvents or oils are used in this building.	None.
Stansell Brothers 12635 E. Los Nietos Rd. Contact: Vernon Stansell Date of EPA Inspection: 1/7/98	According to Mr. Stansell, their business uses acetone, cutting oil, WD-40, Sup-'N'-Kleen Aerosol (contains isobutane, ethylene glycol, and monbuytyl ether). Mr. Stansell provided the MSDSs for other chemicals used at his business. The following information was provided in the MSDSs: Zep ESP (General Purpose Cleaner) - contains d-propyelene glycol methyl ether (<5%). Shell Tetlus Oil 32 (industrial oil) - contains Shell Tellus Oil and solvent refined, hydrotreated heavy paraffinic distillate. Shell Tonna Oil 68 (lubricating oil) - contains Shell Tonna Oil 68; catalytic dewaxed heavy paraffinic distillate; and hydrotreated heavy paraffinic distillate. Dromus B (solvent refined petroleum grade). Garia Oil (cutting oil) (8% fatty oil). 1-k-Kerosene (may contain sulfur and benzene).	Observed containers with naphtha and other degreasers. Spray cans with mold release agents were also observed.
H&H Contractors 12811 E. Los Nietos Rd. Date of EPA Inspection: 1/7/98	No data.	Various cans of glue, varnish, shellac and paint thinner were observed in the building. Several gasoline cans were also stored in the building.

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TABLE 3.21

INTERIM THRESHOLD SCREENING LEVEL EXCEEDANCES DURING IN-BUSINESS AIR MONITORING WASTE DISPOSAL, INC. SUPERFUND SITE

AREA[1]	COMPANY NAME	SAMPLE I.D.	NO. OF SAMPLE ROUND(S) PERFORMED IN 1998	SAMPLE DATE WITH EXCEEDANCE	CONSTITUENT DETECTED ABOVE ITSL[2]	INDOOR AIR THRESHOLD LIMIT (ppb)	CONCENTRATION (ppb)
1	R&R Sprouts	IBM-03B	2	11/98	Benzene	2.0	9.4
	Gold Coast	IBM-22	2	4/98	Benzene	2.0	2.4
5	Brothers Machine & Tool	IBM-50	6	11/98	Benzene	2.0	2.1
7	Campbell Property	IBM-49[3]	6	2/98	Benzene	2.0	390
				2/98	Toluene	212	6,700
				2/98	Ethylbenzene	490	1,000
				2/98	m & p-xylene	142.8	2,900
				2/98	o-xylene	142.8	1,200
8	Stansell Brothers	IBM-03	3	2/98	Acetone	312	1,900
				2/98	Benzene	2.0	4.6
				7/98	Benzene	2.0	2.3
				11/98	Benzene	2.0	4.7
	Bell Auto Body	IBM-12	1	11/98	Benzene	2.0	6.5
	Buffalo Bullet	IBM-24B	6	7/98	Benzene	2.0	2.7
	H&H Contractors	IBM-41	6	2/98	Benzene	2.0	4.7
				4/98	Benzene	2.0	4.6
				5/98	Benzene	2.0	5.8
				7/98	Benzene	2.0	7.2
				11/98	Benzene	2.0	5.7

(1) Area 2 had no ITSL exceedances.
(2) Vinyl chloride has threshold limit of 0.25 ppb. The laboratory's reporting limit was higher than the threshold limit. However, no exceedance of the laboratory's reporting limit were detected.
(3) Identified as ambient air sample.

ppb = parts per billion

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TABLE 3.22

SUMMARY OF ZONE OF INFLUENCE BY SITE AREA WASTE DISPOSAL, INC. SUPERFUND SITE

AREA	ESTIMATED ZONE OF INFLUENCE RADIUS (feet)
Brothers (Area 5)	
• Shallow	37
• Deep	176
C&E Die	
• Shallow	(1)
• Deep	> 200
Area 7	
• Shallow	37
• Deep	> 200
Area 8	
• Shallow	32
• Deep	122
RV Storage Lot (Area 2)	
• Shallow	24

94-256/Rpts/ReDeInSuRe/Tbls&Figs(new) (4/16/99/rmm)

(1) Data was inconsistent, and could not be evaluated. However, a zone of influence of approximately 30 feet was observed in the field based on the vacuum level observed in SMP-2 (20 feet) and SMP-3 (30 feet).

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TABLE 3.23

SUMMARY OF GASSOLVE MODELING RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE

AREA	AVERAGE			
	Horizontal Permeability ($meters^2$)	Leakage ($meters^2$)	Sum of Square	Average Error (%)
Brothers (Area 5)				
• Shallow Soils	1.87×10^{-8}	3.82×10^{-11}	8.94×10^{-8}	33.64
• Deep Soils	8.99×10^{-11}	2.58×10^{-13}	8.65×10^{-7}	3.099
C&E Die				
• Shallow Soils	6.69×10^{-11}	1.47×10^{-10}	2.31×10^{-8}	0.368
• Deep Soils	3.67×10^{-11}	1.32×10^{-14}	5.12×10^{-6}	1.907
Area 7				
• Shallow Soils	6.27×10^{-12}	2.79×10^{-12}	2.77×10^{-7}	0.924
• Deep Soils	5.4×10^{-10}	5.86×10^{-14}	3.9×10^{-7}	4.008
Area 8				
• Shallow Soils	1.34×10^{-10}	2.52×10^{-11}	7.52×10^{-8}	1.719
• Deep Soils	3.62×10^{-11}	1.19×10^{-13}	1.02×10^{-6}	2.726
RV Storage Lot (Area 2)				
• Shallow Soils	6.72×10^{-11}	1.78×10^{-11}	1.71×10^{-6}	3.013

TABLE 3.24

COMPARISON Of SOIL TYPE FROM BORING LOGS AND SOIL TYPE DETERMINED FROM HORIZONTAL PERMEABILITY WASTE DISPOSAL, INC. SUPERFUND SITE

AREA	SOIL TYPE ALONG WELL SCREEN INTERVAL (Boring Log Observations)	HORIZONTAL PERMEABILITY (meters^2) FROM GASSOLVE MODELING PROGRAM	SOIL TYPE FROM PERMEABILITY(1)
Area 7-deep	Silty sand (medium to fine)	5.40E-10	Silty sand to clean sand
Area 7-shallow	Silty sand (medium to fine) and sump material at 4.5 ft.	6.27E-12	Silty sand to clean sand
Area 8-deep	Silty sand to clayey sand, and sand (medium to coarse)	3.62E-11	Silty sand to clean sand
Area 8-shallow	Silty sand (medium to fine) and sandy clay	1.34E-10	Silty sand to clean sand
Brothers (Area 5)-deep	Silty sand to sand (medium to fine, and well graded)	8.99E-11	Silty sand to clean sand
Brothers (Area 5) - shallow	Sandy silt to sandy clay (medium to fine sand)	1.87E-08	Silty sand and clean sand
C&E Die - deep	Sandy silt to silty sand (medium to fine), sand (medium to fine, well graded)	3.67E-11	Silty sand to clean sand
C&E Die - shallow	Sandy silt to sandy clay (medium to fine sand)	6.69E-11	Silty sand to clean sand
RV Storage Lot - shallow	Sandy clay	6.72E-11	Silty sand to clean sand

(1) Data from Soil Vapor Extraction Technology, Petersens, T.A., 1991. Noyes Data Corporation, New Jersey.

TABLE 3.25

COMPARISON OF SOIL GAS LEVELS
WASTE DISPOSAL, INC. SUPERFUND SITE

AREA	INITIAL PURGED CONCENTRATIONS			SVE SHUTDOWN CONCENTRATIONS			FINAL SOIL GAS RECOVERY MONITORING		
	CH_4 (%)	CO_2 (%)	O_2 (%)	CH_4 (%)	CO_2 (%)	O_2 (%)	CH_4 (%)	CO_2 (%)	O_2 (%)
Brothers (Area 5)									
• Shallow	0.2	2.7	9.3	0.0	4.9	11.6	0.0	9.2	2.3
• Deep	3.0	7.0	7.9	1.3	11.8	3.4	1.6	14.7	0.0
C&E Die									
• Shallow	0.2	5.7	13.2	0.0	0.4	20.2	0.0	7.7	3.6
• Deep	2.7	4.5	13.3	0.5	13.7	6.3	0.0	19.8	0.6
Area 7									
• Shallow	0.4	10.0	0.0	0.0	6.0	8.4	0.1	7.3	0.0
• Deep	0.0	0.0	20.9	0.0	8.5	13.0	0.6	13.7	0.0
Area 8									
• Shallow	0.1	14.4	3.6	0.0	1.1	19.3	0.0	10.1	0.0
• Deep	0.0	0.4	20.5	0.0	12.5	7.4	0.11	5.5	9.6
RV Storage Lot (Area 2)									
• Shallow	0.0	4.6	10.1	0.0	0.0	20.7	0.0	2.2	11.4

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TABLE 3.26

ESTIMATE OF MASS REMOVAL OF METHANE, BENZENE AND VINYL CHLORIDE DURING SVE TESTING WASTE DISPOSAL, INC. SUPERFUND SITE

AREA	CONSTITUENT	AMOUNT REMOVED (lbs)
Area 7 Shallow	Methane	4.213
	Benzene	4.58E-05
	Vinyl Chloride	0
Area 7 Deep	Methane	62.591
	Benzene	9.90E-05
	Vinyl Chloride	0.0002
Area 8 Shallow	Methane	0.051
	Benzene	0
	Vinyl Chloride	0
Area 8 Deep	Methane	0.178
	Benzene	0
	Vinyl Chloride	0
Brothers (Area 5) Shallow	Methane	0.145
	Benzene	0
	Vinyl Chloride	0
Brothers (Area 5) Deep	Methane	977.35
	Benzene	0.0197
	Vinyl Chloride	0.0128
C&E Die Shallow	Methane	0.832
	Benzene	0.00007
	Vinyl Chloride	0.00002
C&E Die Deep	Methane	326.09
	Benzene	0.0148
	Vinyl Chloride	0.0082
RV Storage Lot (Area 2) Shallow	Methane	2.204
	Benzene	0.000043
	Vinyl Chloride	0.00001

94-256/Rpts/ReDeInSuRe/Tbls&Figs(new) (4/16/99/rmm)

See Appendix ___ for tables showing calculations for each area.

Theory:

- Determined the volume of gas by using the total volume removed during the test and the concentration of the gas.
- Total volume removed was calculated using the well flow rate and duration of the test.
- Used the Ideal gas law to determine the mass of the gas knowing the volume, pressure, temperature, and molar mass.
- Molar mass of methane = 16 g/mole.
- Molar mass of benzene = 78 g/mole.
- Molar mass of vinyl chloride = 62.5 g/mole

Assumptions:

- Pressure = 1 atm and the pressure remained constant for the duration of the SVE test.
- Flow rate remained constant for the duration of the SVE test.
- Gas concentration as determined by the laboratory remained constant for the duration of the SVE test.
- Temperature remained constant for duration of SVE test. If temperature was not recorded on day of test, other records were checked to see if it had been recorded for another area. If not recorded at all, used temperature from previous day or a subsequent day at similar time for the test.

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TABLE 3.27

EXISTING GROUND WATER MONITORING WELLS
WASTE DISPOSAL, INC. SUPERFUND SITE

WELL NUMBER	TOP OF WELL CASING ELEVATION (ft above MSL)	WELL TYPE	WELL SCREEN (ft bgs)	OCT. 1998 DEPTH TO WATER (ft below TOC)	LOCATION RELATIVE TO WDI WASTE SOURCES
GW - 01	153.5	Shallow	38 - 58	32.7	Upgradient
GW - 02	149.3	Shallow	33 - 53	28.6	Upgradient
GW - 03	167.5	Shallow	48 - 68	46.9	North Perimeter of Reservoir
GW - 04	166.8	Shallow	48 - 68	46.1	North Perimeter of Reservoir
GW - 05	166.7	Shallow	43 - 63	46.5	East Perimeter of Reservoir
GW - 06	158.4	Shallow	43 - 63	38.5	Underlies BWZ (East Area)
GW - 07	154.5	Shallow	38 - 58	34.8	Crossgradient to BWZ (East Area)
GW - 08	163.4	Shallow	43 - 63	46.1	West Perimeter of Reservoir
GW - 09	153.5	Shallow	38 - 58	33.4	Crossgradient to BWZ (West Area)
GW - 10	154.7	Well Cluster-Shallow	38 - 58	35.3	Crossgradient to BWZ (West Area)
GW - 11	154.7	Well Cluster-Deep	118 - 128	35.8	Crossgradient to BWZ (West Area)
GW - 13	157.5	Shallow	39 - 59	38.2	Downgradient of BWZ (West Area)
GW - 14	157.8	Shallow	38 - 58	38.4	Downgradient of Reservoir
GW - 15	163.3	Well Cluster-Shallow	48 - 68	43.7	Downgradient of Reservoir
GW - 16	163.1	Well Cluster-Interm.	74 - 79	44.0	Downgradient of Reservoir
GW - 18	159.1	Well Cluster-Interm.	69 - 74	40.3	Downgradient of Reservoir
GW - 19	158.9	Well Cluster-Shallow	39 - 59	40.0	Downgradient of Reservoir
GW - 21	155.2	Shallow	36 - 56	36.6	Downgradient of BWZ (East Area)
GW - 22	156.7	Shallow	58 - 78	47.8	Crossgradient to BWZ (West Area)
GW - 23	157.0	Well Cluster-Shallow	43 - 63	48.7	Downgradient of BWZ (West Area)
GW - 24	156.7	Well Cluster-Deep	103 - 113	48.3	Downgradient of BWZ (West Area)
GW - 26	156.0	Shallow	44 - 64	37.8	Downgradient of BWZ (East Area)
GW - 27	157.0	Shallow	43 - 63	39.0	Downgradient of BWZ (East Area)
GW - 28	157.3	Shallow	44 - 64	39.4	Downgradient of BWZ (East Area)
GW - 29	157.4	Well Cluster-Shallow	44 - 64	39.6	Downgradient of BWZ (East Area)
GW - 30	156.8	Well Cluster-Deep	74 - 94	39.4	Downgradient of BWZ (East Area)
GW - 31	167.2	Shallow	43 - 63	46.6	North Perimeter of Reservoir

ABBREVIATIONS:

bgs = below ground surface
ft = feet
MSL = mean sea level
BWZ = buried waste zone (waste containment/sump areas outside of reservoir)
TOC = top of well casing

Source: CDM Federal Programs Corporation, Ground Water Data Evaluation Report, Waste Disposal, Inc. Site, January 14, 1999

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TABLE 3.28

WATER LEVEL MEASUREMENTS AND GROUND WATER ELEVATIONS FROM 1988 THROUGH 1998 WASTE DISPOSAL, INC. SUPERFUND SITE

WELL NO.	WELL TYPE	WELL SCREEN INTERVAL (ft bgs)	GROUND SURFACE ELEVATION (ft MSL)	TOP OF CASING ELEVATION (ft MSL)	MEASUREMENT DATE	DEPTH TO GROUND WATER (ft bgs)	WATER LEVEL ELEVATION (ft MSL)	CHANGE FROM PRIOR ELEVATION (+/- feet)
GW - 01	UG - shallow	38 - 58	153.76	153.51	02-Nov-88	46.92	106.59	--
				153.51	16-Dec-91	46.24	107.27	0.68
				153.51	12-Feb-92	45.50	108.01	0.74
				153.51	12-May-92	44.04	109.47	1.46
				153.51	11-Aug-92	43.18	110.33	0.86
				153.51	06-Jun-95	33.54	119.97	9.64
				153.51	19-Sep-95	33.30	120.21	0.24
				153.51	17-Sep-97	34.05	119.46	-0.75
				153.51	Jan-98	35.26	118.25	-1.21
				153.51	Apr-98	32.93	120.58	2.33
				153.51	Jul-98	32.06	121.45	0.87
				153.51	Oct-98	32.75	120.76	-0.69
GW - 02	UG - shallow	33 - 53	149.61	149.30	03-Nov-88	42.20	107.10	--
				149.30	17-Dec-91	41.76	107.54	0.44
				149.30	12-Feb-92	41.15	108.15	0.61
				149.30	13-May-92	39.74	109.56	1.41
				149.30	12-Aug-92	38.94	110.36	0.80
				149.30	06-Jun-95	29.40	119.90	9.54
				149.30	19-Sep-95	29.17	120.13	0.23
				149.30	17-Sep-97	29.96	119.34	-0.79
				149.30	Jan-98	30.96	118.34	-1.00
				149.30	Apr-98	28.74	120.56	2.22
				149.30	Jul-98	27.92	121.38	0.82
				149.30	Oct-98	28.61	120.69	-0.69
GW - 03	R - shallow	48 - 68	167.76	167.51	22-Oct-88	61.10	106.41	--
				167.51	19-Jan-89	61.19	106.32	-0.09
				167.51	16-Dec-91	60.22	107.29	0.88
				167.51	17-Sep-97	48.27	119.24	11.95
				167.51	Jan-98	49.32	118.19	-1.05
				167.51	Apr-98	47.10	120.41	2.22
				167.51	Jul-98	46.32	121.19	0.78
				167.51	Oct-98	46.91	120.60	-0.59
GW - 04	R - shallow	48 - 68	167.01	166.75	27-Oct-88	59.50	107.25	--
				166.75	19-Jan-89	60.21	106.54	-0.71
				166.75	17-Dec-91	59.24	107.51	0.97
				166.75	12-Feb-92	58.72	108.03	0.52
				166.75	13-May-92	57.36	109.39	1.36
				166.75	13-Aug-92	56.50	110.25	0.86

TABLE 3.28

WATER LEVEL MEASUREMENTS AND GROUND WATER ELEVATIONS FROM 1988 THROUGH 1998 WASTE DISPOSAL, INC. SUPERFUND SITE

(Continued)

WELL NO.	WELL TYPE	WELL SCREEN INTERVAL (ft bgs)	GROUND SURFACE ELEVATION (ft MSL)	TOP OF CASING ELEVATION (ft MSL)	MEASUREMENT DATE	DEPTH TO GROUND WATER (ft bgs)	WATER LEVEL ELEVATION (ft MSL)	CHANGE FROM PRIOR ELEVATION (+/- feet)
GW-04	R-shallow	48 - 68	167.01	166.75	06-Jun-95	47.09	119.66	9.41
				166.75	19-Sep-95	46.83	119.92	0.26
				166.75	17-Sep-97	47.51	119.24	-0.68
				166.75	Jan-98	48.53	118.22	-1.02
				166.75	Apr-98	46.26	120.49	2.27
				166.75	Jul-98	45.52	121.23	0.74
				166.75	Oct-98	46.11	120.64	-0.59
GW - 05	R - shallow	43 - 63	166.92	166.67	28-Oct-88	59.80	106.87	--
				166.67	19-Jan-89	60.47	106.20	-0.67
				166.67	17-Dec-91	59.78	106.89	0.69
				166.67	17-Sep-97	47.95	118.72	11.83
				166.67	Jan-98	48.91	117.76	-0.96
				166.67	Apr-98	46.73	119.94	2.18
				166.67	Jul-98	45.95	120.72	0.78
				166.67	Oct-98	46.53	120.14	-0.58
GW - 06	CG - shallow	43 - 63	158.63	158.38	28-Oct-88	51.70	106.68	--
				158.38	19-Jan-89	52.34	106.04	-0.64
				158.38	17-Dec-91	51.60	106.78	0.74
				158.38	17-Sep-97	39.90	118.48	11.70
				158.38	Jan-98	40.68	117.70	-0.78
				158.38	Apr-98	38.40	119.98	2.28
				158.38	Jul-98	37.75	120.63	0.65
				158.38	Oct-98	38.46	119.92	-0.71
GW - 07	CG - shallow	38 - 58	154.78	154.53	29-Oct-88	48.10	106.43	--
				154.53	19-Jan-89	48.68	105.85	-0.58
				154.53	17-Dec-91	47.98	106.55	0.70
				154.53	13-Feb-92	47.38	107.15	0.60
				154.53	13-May-92	46.07	108.46	1.31
				154.53	12-Aug-92	45.33	109.20	0.74
				154.53	06-Jun-95	35.91	118.62	9.42
				154.53	19-Sep-95	35.78	118.75	0.13
				154.53	17-Sep-97	36.32	118.21	-0.54
				154.53	Jan-98	37.05	117.48	-0.73
				154.53	Apr-98	34.83	119.70	2.22
				154.53	Jul-98	34.18	120.35	0.65
				154.53	Oct-98	34.88	119.65	-0.70

TABLE 3.28

WATER LEVEL MEASUREMENTS AND GROUND WATER ELEVATIONS FROM 1988 THROUGH 1998 WASTE DISPOSAL, INC. SUPERFUND SITE

(Continued)

WELL NO.	WELL TYPE	WELL SCREEN INTERVAL (ft bgs)	GROUND SURFACE ELEVATION (ft MSL)	TOP OF CASING ELEVATION (ft MSL)	MEASUREMENT DATE	DEPTH TO GROUND WATER (ft bgs)	WATER LEVEL ELEVATION (ft MSL)	CHANGE FROM PRIOR ELEVATION (+/- feet)
GW - 08	CG - shallow	43 - 63	163.63	163.38	20-Oct-88	59.30	104.08	--
				163.38	19-Jan-89	57.63	105.75	1.67
				163.38	17-Dec-91	56.64	106.74	0.99
				163.38	17-Sep-97	44.49	118.89	12.15
				163.38	Jan-98	47.63	115.75	-3.14
				163.38	Apr-98	43.50	119.88	4.13
				163.38	Jul-98	42.62	120.76	0.88
				163.38	Oct-98	46.16	117.22	-3.54
GW - 09	CG - shallow	38 - 58	153.77	153.52	01-Nov-88	47.50	106.02	--
				153.52	19-Jan-89	48.14	105.38	-0.64
				153.52	16-Dec-91	46.98	106.54	1.16
				153.52	13-Feb-92	46.36	107.16	0.62
				153.52	17-Sep-97	34.75	118.77	11.61
				153.52	Jan-98	37.97	115.55	-3.22
				153.52	Apr-98	33.85	119.67	4.12
				153.52	Jul-98	32.87	120.65	0.98
				153.52	Oct-98	33.41	120.11	-0.54
GW - 10	DG - shallow	38 - 58	154.98	154.73	03-Oct-88	49.30	105.43	--
				154.73	16-Dec-91	48.58	106.15	0.72
				154.73	12-Feb-92	47.94	106.79	0.64
				154.73	13-May-92	46.62	108.11	1.32
				154.73	12-Aug-92	45.83	108.90	0.79
				154.73	01-Jun-95	36.24	118.49	9.59
				154.73	19-Sep-95	35.86	118.87	0.38
				154.73	17-Sep-97	36.54	118.19	-0.68
				154.73	Jan-98	37.62	117.11	-1.08
				154.73	Apr-98	35.66	119.07	1.96
				154.73	Jul-98	34.68	120.05	0.98
				154.73	Oct-98	35.27	119.46	-0.59
GW - 11	DG - deep	118 - 128	154.91	154.66	03-Oct-88	49.90	104.76	--
				154.66	19-Jan-89	49.67	104.99	0.23
				154.66	16-Dec-91	48.96	105.70	0.71
				154.66	12-Feb-92	48.20	106.46	0.76
				154.66	13-May-92	46.98	107.68	1.22
				154.66	13-Aug-92	46.21	108.45	0.77
				154.66	01-Jun-95	36.52	118.14	9.69
				154.66	19-Sep-95	36.39	118.27	0.13

TABLE 3.28

WATER LEVEL MEASUREMENTS AND GROUND WATER ELEVATIONS FROM 1988 THROUGH 1998 WASTE DISPOSAL, INC. SUPERFUND SITE

(Continued)

WELL NO.	WELL TYPE	WELL SCREEN INTERVAL (ft bgs)	GROUND SURFACE ELEVATION (ft MSL)	TOP OF CASING ELEVATION (ft MSL)	MEASUREMENT DATE	DEPTH TO GROUND WATER (ft bgs)	WATER LEVEL ELEVATION (ft MSL)	CHANGE FROM PRIOR ELEVATION (+/- feet)
GW - 11	DG - deep	118 - 128	154.91	154.66	17-Sep-97	37.05	117.61	-0.66
				154.66	Jan-98	38.04	116.62	-0.99
				154.66	Apr-98	37.90	116.76	0.14
				154.66	Jul-98	35.03	119.63	2.87
				154.66	Oct-98	35.79	118.87	-0.76
GW - 13	DG - shallow	39 - 59	157.77	157.52	01-Nov-88	51.70	105.82	--
				157.52	19-Jan-89	52.26	105.26	-0.56
				157.52	16-Dec-91	51.38	106.14	0.88
				157.52	17-Sep-97	39.55	117.97	11.83
				157.52	Jan-98	40.61	116.91	-1.06
				157.52	Apr-98	38.72	118.80	1.89
				157.52	Jul-98	37.69	119.83	1.03
				157.52	Oct-98	38.22	119.30	-0.53
GW - 14	DG - shallow	38 - 58	157.92	157.76	01-Nov-88	51.80	105.96	--
				157.76	19-Jan-89	52.34	105.42	-0.54
				157.76	16-Dec-91	51.55	106.21	0.79
				157.76	17-Sep-97	39.82	117.94	11.73
				157.76	Jan-98	40.80	116.96	-0.98
				157.76	Apr-98	38.98	118.78	1.82
				157.76	Jul-98	37.97	119.79	1.01
				157.76	Oct-98	38.43	119.33	-0.46
GW - 15	DG - shallow	48 - 68	163.55	163.30	20-Oct-88	57.20	106.10	--
				163.30	19-Jan-89	57.67	105.63	-0.47
				163.30	17-Dec-91	56.82	106.48	0.85
				163.30	17-Sep-97	44.99	118.31	11.83
				163.30	Jan-98	46.03	117.27	-1.04
				163.30	Apr-98	44.44	118.86	1.59
				163.30	Jul-98	43.06	120.24	1.38
				163.30	Oct-98	43.66	119.64	-0.60
GW - 16	DG - intermed.	74 - 79	163.32	163.07	20-Oct-88	57.30	105.77	--
				163.07	19-Jan-89	57.90	105.17	-0.60
				163.07	17-Dec-91	57.16	105.91	0.74
				163.07	17-Sep-97	45.33	117.74	11.83
				163.07	Jan-98	46.34	116.73	-1.01
				163.07	Apr-98	44.51	118.56	1.83
				163.07	Jul-98	43.38	119.69	1.13
				163.07	Oct-98	43.95	119.12	-0.57

TABLE 3.28

WATER LEVEL MEASUREMENTS AND GROUND WATER ELEVATIONS FROM 1988 THROUGH 1998 WASTE DISPOSAL, INC. SUPERFUND SITE

(Continued)

WELL NO.	WELL TYPE	WELL SCREEN INTERVAL (ft bgs)	GROUND SURFACE ELEVATION (ft MSL)	TOP OF CASING ELEVATION (ft MSL)	MEASUREMENT DATE	DEPTH TO GROUND WATER (ft bgs)	WATER LEVEL ELEVATION (ft MSL)	CHANGE FROM PRIOR ELEVATION (+/- feet)
GW - 18	DG - intermed.	69 - 74	159.34	159.10	17-Oct-88	55.60	103.50	--
				159.10	16-Dec-91	53.30	105.80	2.30
				159.10	17-Sep-97	41.65	117.45	11.65
				159.10	Jan-98	42.52	116.58	-0.87
				159.10	Apr-98	40.42	118.68	2.10
				159.10	Jul-98	39.67	119.43	0.75
				159.10	Oct-98	40.30	118.80	-0.63
GW - 19	DG - shallow	39 - 59	159.16	158.89	17-Oct-88	54.50	104.39	--
				158.89	19-Jan-89	53.71	105.18	0.79
				158.89	16-Dec-91	53.15	105.74	0.56
				158.89	17-Sep-97	41.45	117.44	11.70
				158.89	Jan-98	42.29	116.60	-0.84
				158.89	Apr-98	40.30	118.59	1.99
				158.89	Jul-98	39.50	119.39	0.80
				158.89	Oct-98	39.99	118.90	-0.49
GW - 21	CG - shallow	36 - 56	155.49	155.24	29-Oct-88	49.70	105.54	--
				155.24	17-Dec-91	49.56	105.68	0.14
				155.24	17-Sep-97	37.94	117.30	11.62
				155.24	Jan-98	38.67	116.57	-0.73
				155.24	Apr-98	36.52	118.72	2.15
				155.24	Jul-98	35.91	119.33	0.61
				155.24	Oct-98	36.59	118.65	-0.68
GW - 22	DG - shallow	58 - 78	156.94	156.69	03-Oct-88	64.98	91.71	--
				156.69	16-Dec-91	64.54	92.15	0.44
				156.69	17-Sep-97	49.02	107.67	15.52
				156.69	Jan-98	50.31	106.38	-1.29
				156.69	Apr-98	49.44	107.25	0.87
				156.69	Jul-98	47.91	108.78	1.53
				156.69	Oct-98	47.82	108.87	0.09
GW - 23	DG - shallow	43 - 63	157.23	156.98	31-Oct-88	59.40	97.58	--
				156.98	16-Dec-91	58.58	98.40	0.82
				156.98	12-Feb-92	57.99	98.99	0.59
				156.98	13-May-92	57.64	99.34	0.35
				156.98	12-Aug-92	57.18	99.80	0.46
				156.98	01-Jun-95	48.59	108.39	8.59
				156.98	19-Sep-95	48.51	108.47	0.08
				156.98	17-Sep-97	47.80	109.18	0.71

TABLE 3.28

WATER LEVEL MEASUREMENTS AND GROUND WATER ELEVATIONS FROM 1988 THROUGH 1998 WASTE DISPOSAL, INC. SUPERFUND SITE

(Continued)

WELL NO.	WELL TYPE	WELL SCREEN INTERVAL (ft bgs)	GROUND SURFACE ELEVATION (ft MSL)	TOP OF CASING ELEVATION (ft MSL)	MEASUREMENT DATE	DEPTH TO GROUND WATER (ft bgs)	WATER LEVEL ELEVATION (ft MSL)	CHANGE FROM PRIOR ELEVATION (+/- feet)
GW - 23	DG - shallow	43 - 63	157.23	156.98	Jan-98	49.01	107.97	-1.21
				156.98	Apr-98	48.02	108.96	0.99
				156.98	Jul-98	48.63	108.35	-0.61
				156.98	Oct-98	48.67	108.31	-0.04
GW - 24	DG - deep	103 - 113	157.03	156.70	31-Oct-88	64.40	92.30	--
				156.70	16-Dec-91	64.33	92.37	0.07
				156.70	12-Feb-92	63.72	92.98	0.61
				156.70	12-May-92	62.51	94.19	1.21
				156.70	12-Aug-92	57.00	99.70	5.51
				156.70	01-Jun-95	50.43	106.27	6.57
				156.70	19-Sep-95	49.30	107.40	1.13
				156.70	17-Sep-97	49.42	107.28	-0.12
				156.70	Jan-98	50.38	106.32	-0.96
				156.70	Apr-98	49.67	107.03	0.71
				156.70	Jul-98	48.37	108.33	1.30
				156.70	Oct-98	48.31	108.39	0.06
GW - 26	DG - shallow	44 - 64	156.29	156.04	02-Oct-88	51.40	104.64	--
				156.04	19-Jan-89	52.41	103.63	-1.01
				156.04	16-Dec-91	50.60	105.44	1.81
				156.04	12-Feb-92	50.09	105.95	0.51
				156.04	12-May-92	48.88	107.16	1.21
				156.04	11-Aug-92	48.06	107.98	0.82
				156.04	01-Jun-95	39.07	116.97	8.99
				156.04	19-Sep-95	38.60	117.44	0.47
				156.04	17-Sep-97	39.09	116.95	-0.49
				156.04	Jan-98	40.03	116.01	-0.94
				156.04	Apr-98	38.28	117.76	1.75
				156.04	Jul-98	37.32	118.72	0.96
				156.04	Oct-98	37.79	118.25	-0.47
GW - 27	DG - shallow	43 - 63	157.28	157.03	02-Oct-88	51.80	105.23	--
				157.03	19-Jan-89	52.22	104.81	-0.42
				157.03	16-Dec-91	51.70	105.33	0.52
				157.03	17-Sep-97	40.31	116.72	11.39
				157.03	Jan-98	41.19	115.84	-0.88
				157.03	Apr-98	39.46	117.57	1.73
				157.03	Jul-98	38.53	118.50	0.93
				157.03	Oct-98	39.00	118.03	-0.47

TABLE 3.28

WATER LEVEL MEASUREMENTS AND GROUND WATER ELEVATIONS FROM 1988 THROUGH 1998 WASTE DISPOSAL, INC. SUPERFUND SITE

(Continued)

WELL NO.	WELL TYPE	WELL SCREEN INTERVAL (ft bgs)	GROUND SURFACE ELEVATION (ft MSL)	TOP OF CASING ELEVATION (ft MSL)	MEASUREMENT DATE	DEPTH TO GROUND WATER (ft bgs)	WATER LEVEL ELEVATION (ft MSL)	CHANGE FROM PRIOR ELEVATION (+/- feet)
GW - 28	DG - shallow	44 - 64	157.56	157.31	02-Oct-88	53.80	103.51	--
				157.31	19-Jan-89	52.82	104.49	0.98
				157.31	16-Dec-91	52.30	105.01	0.52
				157.31	11-Feb-92	51.81	105.50	0.49
				157.31	12-May-92	50.54	106.77	1.27
				157.31	11-Aug-92	49.80	107.51	0.74
				157.31	01-Jun-95	40.73	116.58	9.07
				157.31	19-Sep-95	40.36	116.95	0.37
				157.31	17-Sep-97	40.76	116.55	-0.40
				157.31	Jan-98	41.56	115.75	-0.80
				157.31	Apr-98	39.84	117.47	1.72
				157.31	Jul-98	38.90	118.41	0.94
				157.31	Oct-98	39.41	117.90	-0.51
GW - 29	DG - shallow	44 - 64	157.69	157.40	29-Oct-88	52.40	105.00	--
				157.40	16-Dec-91	52.55	104.85	-0.15
				157.40	17-Sep-97	40.98	116.42	11.57
				157.40	Jan-98	41.73	115.67	-0.75
				157.40	Apr-98	40.05	117.35	1.68
				157.40	Jul-98	39.13	118.27	0.92
				157.40	Oct-98	39.63	117.77	-0.50
GW - 30	DG - intermed.	74 - 94	157.01	156.80	15-Nov-88	55.40	101.40	--
				156.80	16-Dec-91	52.54	104.26	2.86
				156.80	11-Feb-92	51.90	104.90	0.64
				156.80	13-May-92	50.72	106.08	1.18
				156.80	12-Aug-92	50.00	106.80	0.72
				156.80	01-Jun-95	40.47	116.33	9.53
				156.80	19-Sep-95	40.34	116.46	0.13
				156.80	17-Sep-97	40.73	116.07	-0.39
				156.80	Jan-98	41.37	115.43	-0.64
				156.80	Apr-98	39.42	117.38	1.95
				156.80	Jul-98	38.69	118.11	0.73
				156.80	Oct-98	39.41	117.39	-0.72

TABLE 3.28

WATER LEVEL MEASUREMENTS AND GROUND WATER ELEVATIONS FROM 1988 THROUGH 1998 WASTE DISPOSAL, INC. SUPERFUND SITE

(Continued)

WELL NO.	WELL TYPE	WELL SCREEN INTERVAL (ft bgs)	GROUND SURFACE ELEVATION (ft MSL)	TOP OF CASING ELEVATION (ft MSL)	MEASUREMENT DATE	DEPTH TO GROUND WATER (ft bgs)	WATER LEVEL ELEVATION (ft MSL)	CHANGE FROM PRIOR ELEVATION (+/- feet)
GW - 31	R - shallow	43 - 63	167.47	167.22	27-Oct-88	60.00	107.22	--
				167.22	16-Dec-91	59.82	107.40	0.18
				167.22	17-Sep-97	47.95	119.27	11.87
				167.22	Jan-98	48.96	118.26	-1.01
				167.22	Apr-98	46.74	120.48	2.22
				167.22	Jul-98	45.98	121.24	0.76
				167.22	Oct-98	46.57	120.65	-0.59

EXPLANATION:

1. Well types: UG = upgradient, R = edge of reservoir, CG = crossgradient to reservoir, DG = downgradient of reservoir & containment areas.

2. Four additional wells (GW-12, GW-17, GW-20 and GW-25) were initially proposed for the 1989 remedial investigation but were not installed.

3. Original well construction records mislabeled wells GW-10 and GW-11. EPA's 1992 sampling and 1997 well sounding confirm GW-10 is shallow well and GW-11 is deep well.

Source: CDM Federal Programs Corporation, Ground Water Data Evaluaton Report, Waste Disposal, Inc. Site, January 14, 1999.

TABLE 3.29

GROUND WATER ANALYSES AND QUALITY CONTROL OBJECTIVES
WASTE DISPOSAL, INC. SUPERFUND SITE

PARAMETERS	ANALYTICAL PROCEDURE (EPA METHOD NO.)	LABORATORY SPECIFIC MEASUREMENT QUALITY OBJECTIVES (MQOs)				TYPE OF CONTAINER	PRESERVATIVE	ANALYTICAL HOLDING TIMES	REMARKS
		Detection Limit (µg/L)	Accuracy[1] (%)	Precision[2] (%)	Completeness (%)				
METALS						One 1-Liter Bottle Unfiltered/One 1-Liter Bottle filtered	Acidified to pH <2 with Nitric Acid After Filtration	6 Months	
• Aluminum	6010A	10.0	80 - 120	± 30	90				
• Antimony	6010A	5.0	80 - 120	± 30	90				
• Arsenic	7060	5.0	80 - 120	± 30	90				
• Barium	6010A	10.0	80 - 120	± 30	90				
• Beryllium	6010A	2.0	80 - 120	± 30	90				
• Cadmium	6010A	5.0	80 - 120	± 30	90				
• Calcium	6010A	60.0	80 - 120	± 30	90				
• Cobalt	6010A	18.0	80 - 120	± 30	90				
• Chromium	6010A	10.0	80 - 120	± 30	90				
• Iron	6010A	10.0	80 - 120	± 30	90				
• Lead	6010A	40.0	80 - 120	± 30	90				
• Magnesium	7421	3.0	80 - 120	± 30	90				
• Manganese	6010A	30.0	80 - 120	± 30	90				
• Mercury	6010A	2.0	80 - 120	± 30	90				
• Nickel	7470	3.0	80 - 120	± 30	90				
• Selenium	6010A	32.0	80 - 120	± 30	90				
• Sodium	6010A	90.0	80 - 120	± 30	90				
• Thallium	7740	6.0	80 - 120	± 30	90				
• Vanadium	6010A	10.0	80 - 120	± 30	90				
• Zinc	6010A	40.0	80 - 120	± 30	90				
VOLATILE ORGANIC COMPOUNDS (VOCs)						Two 40 mL VOA Vials	Acidified to pH <2 with Hydrochloric Acid	14 Days	
• 1,1,1-Trichloroethane	8260A	0.5	71 - 132	± 30	90				
• 1,1,2,2-Tetrachloroethane	8260A	0.5	76 - 136	± 30	90				
• 1,1,2-Trichloroethane	8260A	0.5	67 - 133	± 30	90				
• 1,1-Dichloroethane	8260A	0.5	49 - 135	± 30	90				
• 1,1-Dichloroethene	8260A	0.5	48 - 146	± 30	90				
• 1,2-Dichloroethane	8260A	0.5	68 - 129	± 30	90				
• 1,2-Dichloropropane	8260A	0.5	42 - 131	± 30	90				
• 2-Butanone	8260A	0.5	50 - 153	± 30	90				
• 2-Chloroethyl Vinyl Ether	8260A	0.5	40 - 214	± 30	90				
• 2-Hexanone	8260A	0.5	20 - 149	± 30	90				
• 4-Methyl-2pentanone	8260A	0.5	40 - 125	± 30	90				
• Acetone	8260A	0.5	32 - 176	± 30	90				
• Benzene	8260A	0.5	72 - 124	± 30	90				
• Bromodichloromethane	8260A	0.5	69 - 132	± 30	90				
• Bromoform	8260A	0.5	53 - 148	± 30	90				
• Bromomethane	8260A	0.5	55 - 146	± 30	90				
• Carbon Disulfide	8260A	0.5	37 - 140	± 30	90				
• Carbon Tetrachloride	8260A	0.5	70 - 140	± 30	90				
• Chloroethane	8260A	0.5	52 - 137	± 30	90				

(1) Based on Matrix Spike Percent Recovery.
(2) Based on Duplicate Samples.

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TABLE 3.29

GROUND WATER ANALYSES AND QUALITY CONTROL OBJECTIVES
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

PARAMETERS	ANALYTICAL PROCEDURE (EPA METHOD NO.)	LABORATORY SPECIFIC MEASUREMENT QUALITY OBJECTIVES (MQOs)				TYPE OF CONTAINER	PRESERVATIVE	ANALYTICAL HOLDING TIMES	REMARKS
		Detection Limit (µg/L)	Accuracy[1] (%)	Precision[2] (%)	Completeness (%)				
VOLATILE ORGANIC COMPOUNDS (VOCs) (Continued)									
• Chloroform	8260A	0.5	77 - 128	± 30	90				
• Chloromethane	8260A	0.5	37 - 129	± 30	90				
• cis-1,3-Dichloropropene	8260A	0.5	66 - 129	± 30	90				
• 1,2, Dibromoethane	8260A	0.5	56 - 142	± 30	90				
• Methylene Chloride	8260A	0.5	51 - 139	± 30	90				
• Tetrachloroethene	8260A	0.5	67 - 145	± 30	90				
• trans-1,2-Dichloroethee	8260A	0.5	48 - 134	± 30	90				
• trans-1,3-Dichloropropene	8260A	0.5	66 - 130	± 30	90				
• Trichloroethene	8260A	0.5	71 - 135	± 30	90				
• Vinyl Acetate	8260A	0.5	24 - 143	± 30	90				
• Vinyl Chloride	8260A	0.5	48 - 140	± 30	90				
SVOCs						1-Liter Amber Glass Bottle with Teflon® Seal.	None. Cool to 4° C.	7 Days to Extract. 40 Days after Extraction	
• Acenaphthene	8270	5.0	51 - 126	± 30	90				
• Acenaphylene	8270	5.0	56 - 131	± 30	90				
• Anthracene	8270	5.0	54 - 117	± 30	90				
• Benzo(a)anthracene	8270	5.0	55 - 132	± 30	90				
• Benzo(b)fluoranthene	8270	5.0	43 - 135	± 30	90				
• Benzo(k)fluoranthene	8270	5.0	57 - 137	± 30	90				
• Benzo(g,h,i)perylene	8270	5.0	36 - 157	± 30	90				
• Benzo(a)pyrene	8270	5.0	51 - 141	± 30	90				
• bis(2-Chloroethyl)ether	8270	5.0	48 - 117	± 30	90				
• bis(2-Chloroisopropyl)ether	8270	5.0	39 - 155	± 30	90				
• bis(2-Ethylhexyl)phthalate	8270	5.0	15 - 176	± 30	90				
• 4-Bromophenyl-phenylether	8270	5.0	43 - 142	± 30	90				
• Butylbenzylphthalate	8270	5.0	50 - 139	± 30	90				
• 4-Chloroaniline	8270	5.0	46 - 126	± 30	90				
• 4-Chloro-3-methylphenol	8270	5.0	49 - 133	± 30	90				
• 2-Chloronaphthalene	8270	5.0	36 - 97	± 30	90				
• 4-Chlorophenyl-phenylether	8270	5.0	49 - 134	± 30	90				
• Chrysene	8270	5.0	55 - 134	± 30	90				
• Dibenz(a,h)anthracene	8270	5.0	41 - 144	± 30	90				
• Dibenz(a,h)acridine	8270	5.0	(3)	± 30	90				
• Dibenzofuran	8270	5.0	53 - 129	± 30	90				
• Di-n-butylphthalate	8270	5.0	50 - 129	± 30	90				
• 1,2-Dichlorobenzene	8270	5.0	30 - 120	± 30	90				
• 1,3-Dichlorobenzene	8270	5.0	28 - 114	± 30	90				
• 1,4-Dichlorobenzene	8270	5.0	28 - 116	± 30	90				
• 3,3-Dichlorobenzidine	8270	5.0	I - 262	± 30	90				
• 2,4-Dichlorophenol	8270	5.0	43 - 124	± 30	90				
• Dimethylphthalate	8270	5.0	55 - 134	± 30	90				
• 4,6-Dinitro-2-methylphenol	8270	25	38 - 147	± 30	90				
• 2,4-Dinitrophenol	8270	25	22 - 174	± 30	90				
• 2,4-Dinitrotoluene	8270	5.0	51 - 146	± 30	90				
• 2,6-Dinitrotoluene	8270	5.0	53 - 129	± 30	90				
• Di-n-octylphthalate	8270	5.0	41 - 145	± 30	90				
• Fluoranthene	8270	5.0	52 - 128	± 30	90				

(1) Based on Matrix Spike Percent Recovery.
(2) Based on Duplicate Samples.
(3) Insufficient spike data for setting accuracy limits.

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TABLE 3.29

GROUND WATER ANALYSES AND QUALITY CONTROL OBJECTIVES
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

PARAMETERS	ANALYTICAL PROCEDURE (EPA METHOD NO.)	LABORATORY SPECIFIC MEASUREMENT QUALITY OBJECTIVES (MQOs)				TYPE OF CONTAINER	PRESERVATIVE	ANALYTICAL HOLDING TIMES	REMARKS
		Detection Limit (µg/L)	Accuracy(1) (%)	Precision(2) (%)	Completeness (%)				
SVOCs (Continued)									
• Fluorene	8270	5.0	55 - 126	± 30	90				
• Indeno(1,2,3-ad)pyrene	8270	5.0	30 - 172	± 30	90				
• Isophorone	8270	5.0	39 - 126	± 30	90				
• 2-Methylnaphthalene	8270	5.0	36 - 124	± 30	90				
• 2-Methylphenol	8270	5.0	36 - 116	± 30	90				
• 4-Methylphenol	8270	10.0	46 - 109	± 30	90				
• 2-Nitroaniline	8270	5.0	54 - 133	± 30	90				
• 4-Nitroaniline	8270	5.0	40 - 166	± 30	90				
• 2-Nitrophenol	8270	5.0	43 - 122	± 30	90				
• N-Nitrosophenylamine	8270	5.0	(5)	± 30	90				
• N-Nitroso-di-n-propylanine	8270	5.0	32 - 136	± 30	90				
• Naphthalene	8270	5.0	40 - 110	± 30	90				
• Nitrobenzene	8270	5.0	44 - 118	± 30	90				
• Pentachlorophenol	8270	10.0	26 - 158	± 30	90				
• Phenanthrene	8270	5.0	54 - 128	± 30	90				
• Phenol	8270	5.0	28 - 91	± 30	90				
• Pyrene	8270	5.0	53 - 128	± 30	90				
• 1,2,4-Trichlorobenzene	8270	5.0	30 - 121	± 30	90				
• 2,4,5-Trichlorophenol	8270	5.0	49 - 143	± 30	90				
• 2,4,6-Trichlorophenol	8270	5.0	50 - 134	± 30	90				
PESTICIDES/PCBs(6)						1 Liter Amber Glass Bottle With Teflon Seam	None. Cool to 4° C.	14 Days to Extract. 40 Days after Extraction.	
• 4,4'-DDD	8080	0.03	68 - 146	± 30	90				
• 4,4'-DDE	8080	0.03	71 - 136	± 30	90				
• 4,4'-DDT	8080	0.03	64 - 142	± 30	90				
• Aldrin	8080	0.03	65 - 132	± 30	90				
• Alpha-BHC	8080	0.03	71 - 132	± 30	90				
• Beta-BHC	8080	0.03	72 - 139	± 30	90				
• Delta-BHC	8080	0.03	75 - 134	± 30	90				
• Gamma-BHC	8080	0.40	73 - 136	± 30	90				
• Chlordane	8080	0.03	(5)	± 30	90				
• Dieldrin	8080	0.03	73 - 134	± 30	90				
• Endosulfan I	8080	0.03	45 - 127	± 30	90				
• Endosulfan II	8080	0.03	50 - 126	± 30	90				
• Endosulfan Sulfate	8080	0.03	51 - 163	± 30	90				
• Endrin	8080	0.03	63 - 150	± 30	90				
• Endrin Aldehyde	8080	0.03	70 - 136	± 30	90				
• Endrin Ketone	8080	0.03	(6)	± 30	90				
• Heptachlor	8080	0.03	62 - 144	± 30	90				
• Heptachlorepoxide	8080	0.03	74 - 134	± 30	90				
• Methoxychlor	8080	0.03	47 - 147	± 30	90				
• Toxaphene	8080	1.0	(5)	± 30	90				
• PCBs	8080	0.50	54 - 146	± 30	90				

(1) Based on Matrix Spike Percent Recovery.
(2) Based on Duplicate Samples.
(3) Insufficient spike data for setting accuracy limits.
(4) Ground water samples will not be analyzed for pesticides/PCBs.
(5) Multiple peak chromatograms inhibit setting accuracy limits.
(6) Insufficient spike data available to set accuracy limits.

TRC

TABLE 4.1

POTENTIAL SOIL GAS ACTION LEVELS

PARAMETER	ACTION LEVEL
Methane	1.25%[1]
Benzene	7.1 ppbv[2][3]
Vinyl Chloride	0.86 ppbv[2]
Trichloroethylene (TCE)	20 ppbv[2]
Tetrachloroethylene (PCE)	49 ppbv[2]

94-256/Rpts/ReDeInSuRe/Tbls&Figs(new) (4/16/99/rm)

[1] The methane action level is based on EPA's Interim Threshold Screening Limits from the Subsurface Gas Contingency Plan.

[2] The potential action levels are based on EPA's PRGs for ambient air, assuming a dilution factor of 100 for diffusion into onsite buildings.

[3] The potential action levels for benzene range from 7.1 ppbv to 10.0 ppbv.

94-256RDISR REV. 4/5/99

0 2,000 4,000 FEET

SCALE

REFERENCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP OF WHITTIER, CALIFORNIA, DATED 1981.

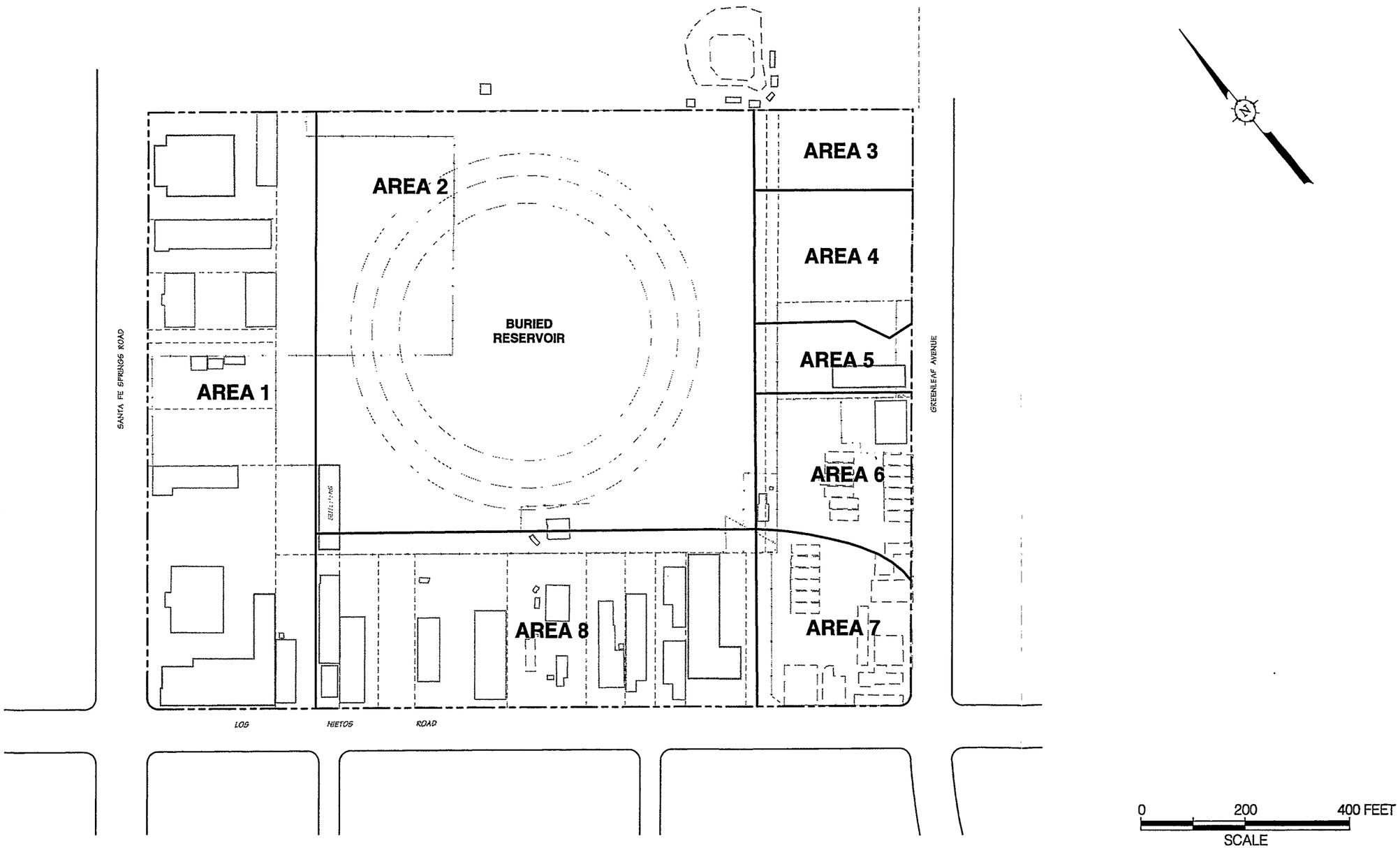
SITE LOCATION MAP

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 2.1

94-256RDISR-01 REV. 03/30/99



LEGEND

- SITE BOUNDARY
- SITE AREA BOUNDARY
- FENCE
- EXISTING BUILDING/STRUCTURE
- PROPERTY BOUNDARY

REFERENCE: NUNEZ ENGINEERING, SURVEY DRAWING NE 97187, OCT. 31, 1997

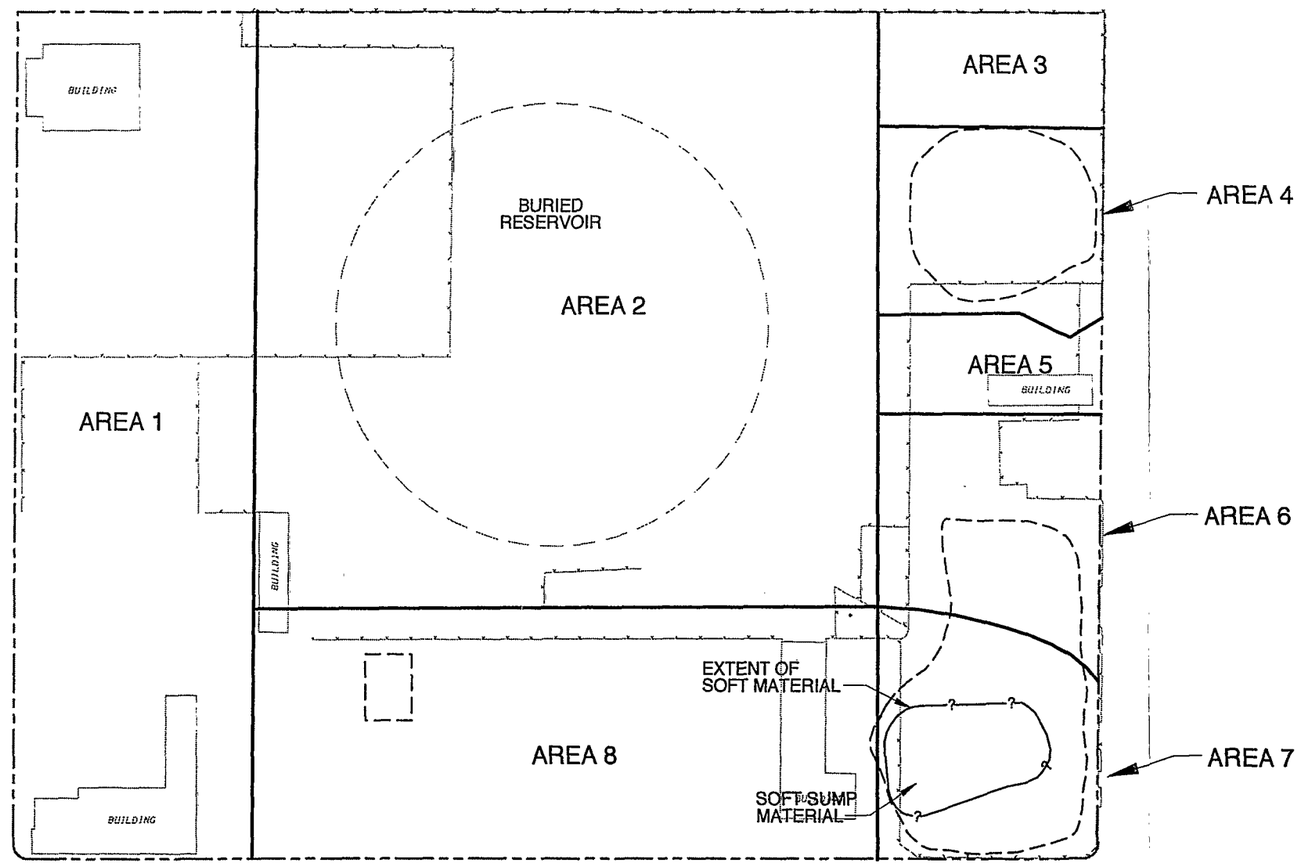
0 200 400 FEET
SCALE

SITE FEATURES

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | **FIGURE 2.2**

94-256RDISR-02 REV. 03/31/99



0 200 400 FEET
SCALE

LEGEND

- SITE BOUNDARY
- AREA BOUNDARY
- FENCE
- EXISTING BUILDING
- APPROXIMATE EXCAVATION AREA AS IDENTIFIED IN ROD

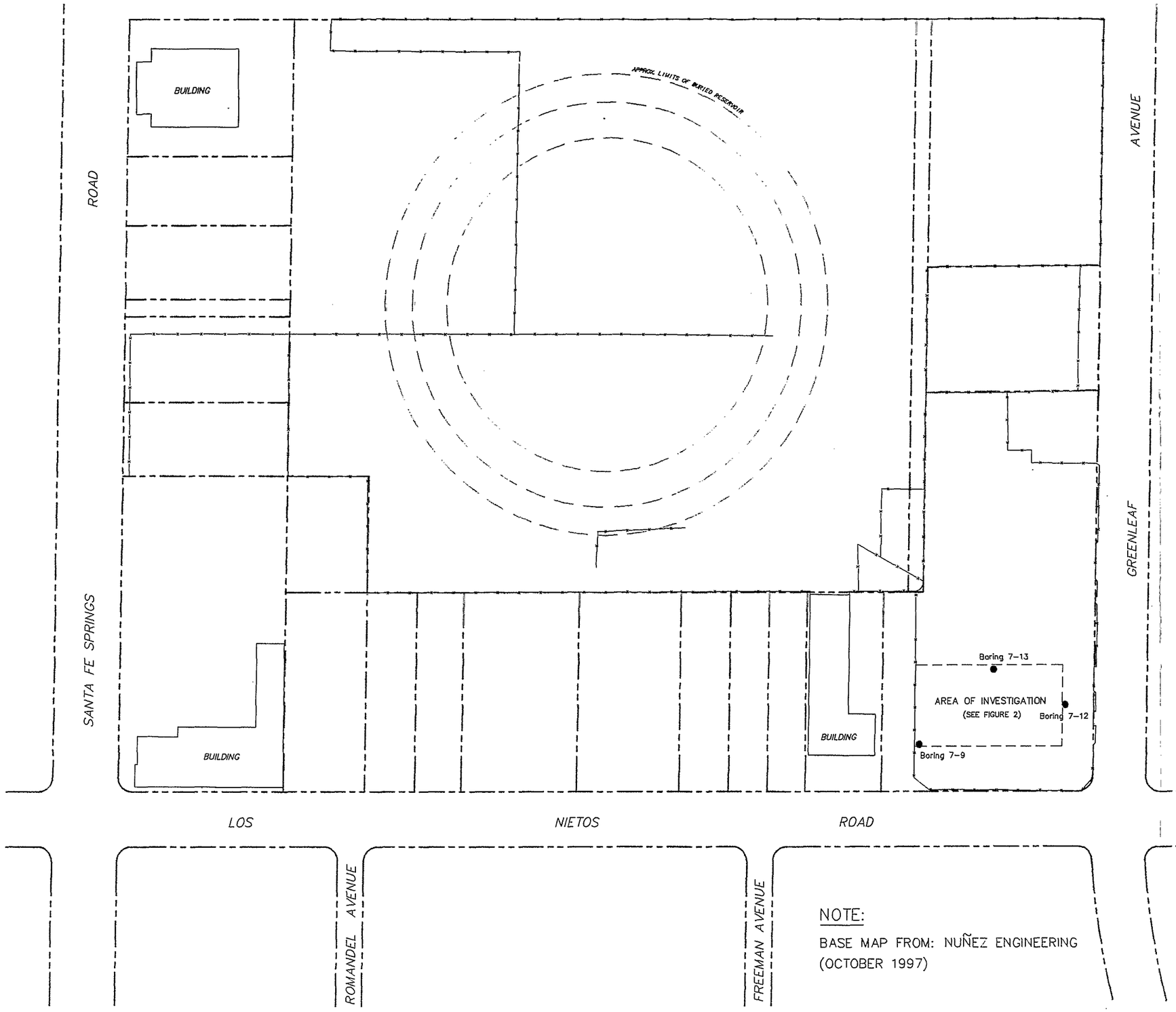
REFERENCE: NUNEZ ENGINEERING, SURVEY DRAWING NE 97187, OCT. 31, 1997.

ROD SUMP OUTLINE

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | **FIGURE 2.3**

94-256RDISR REV. 4/15/99



GRAPHIC SCALE

60 0 30 60 120 240 FEET

LEGEND

CHAIN LINK FENCE

PROPERTY LINE

NOTE:

BASE MAP FROM: NUÑEZ ENGINEERING (OCTOBER 1997)

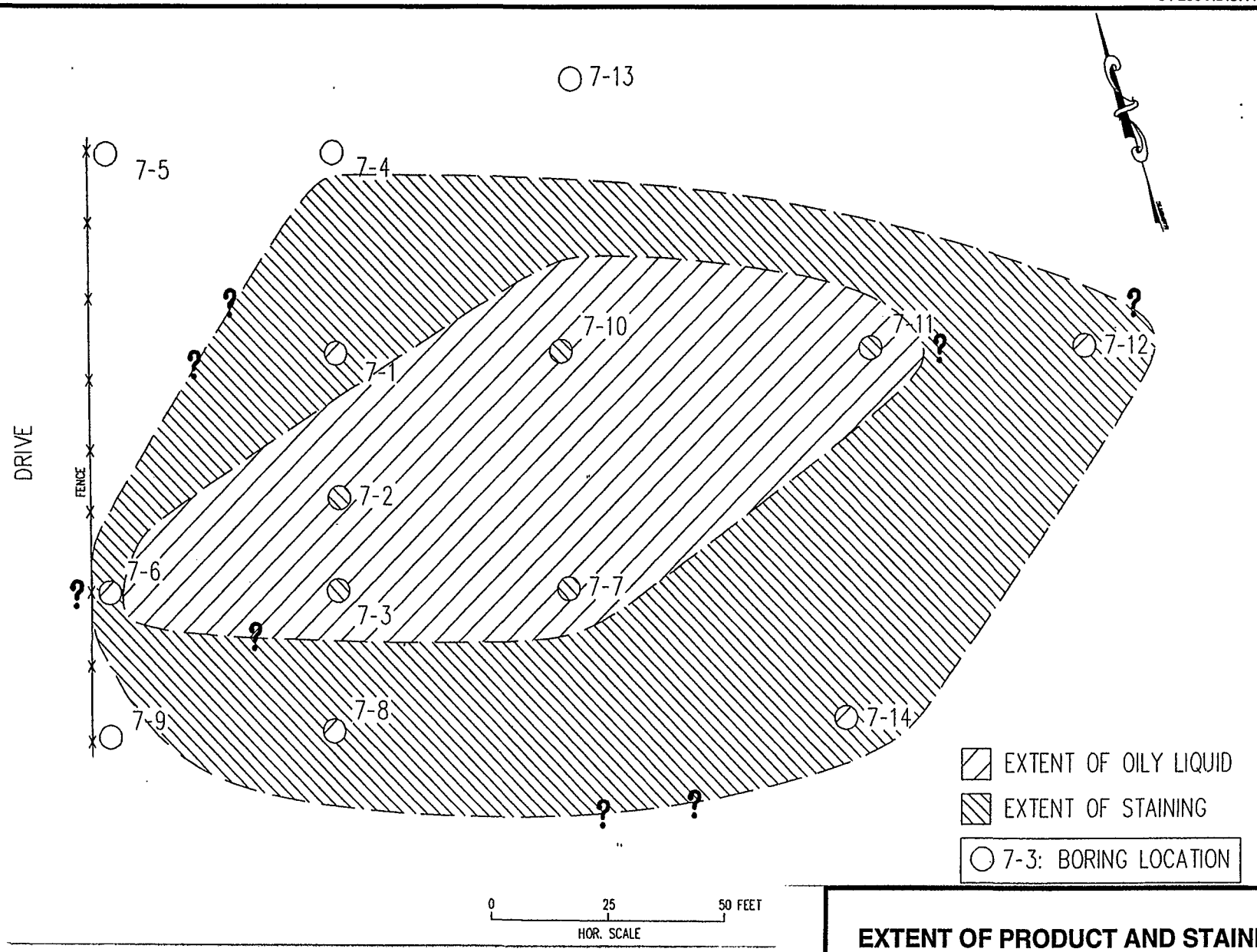
SOURCE: U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER.

SITE LOCATION MAP

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 2.4



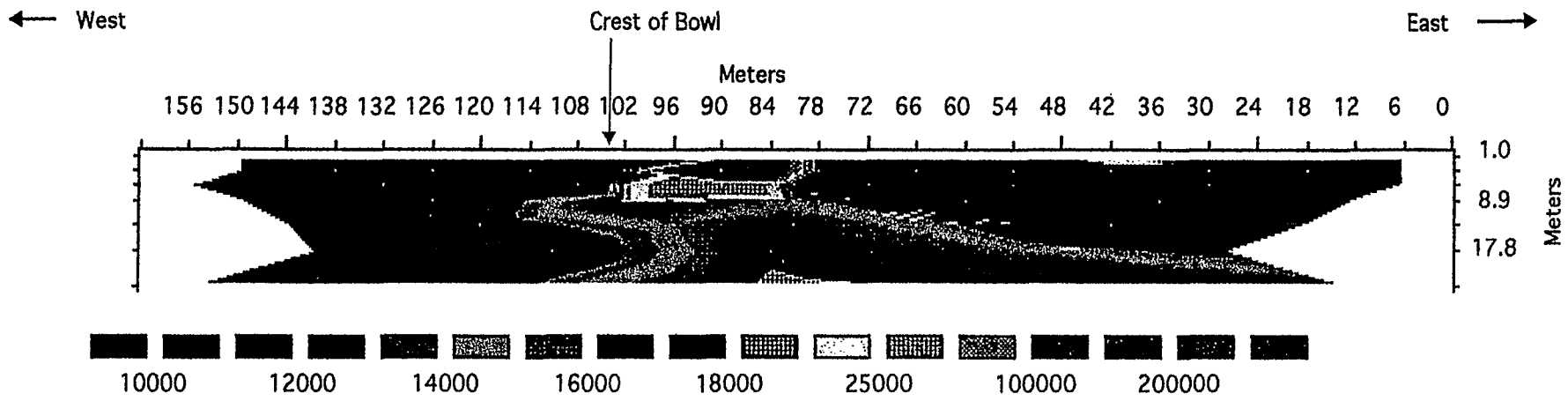
EXTENT OF PRODUCT AND STAINING
AREA 7
DECEMBER 1998

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

SOURCE: U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER.

TRC

FIGURE 2.5



SOURCE: SPECTRUM GEOPHYSICS, CROSS SECTION BY P. JENNINGS.

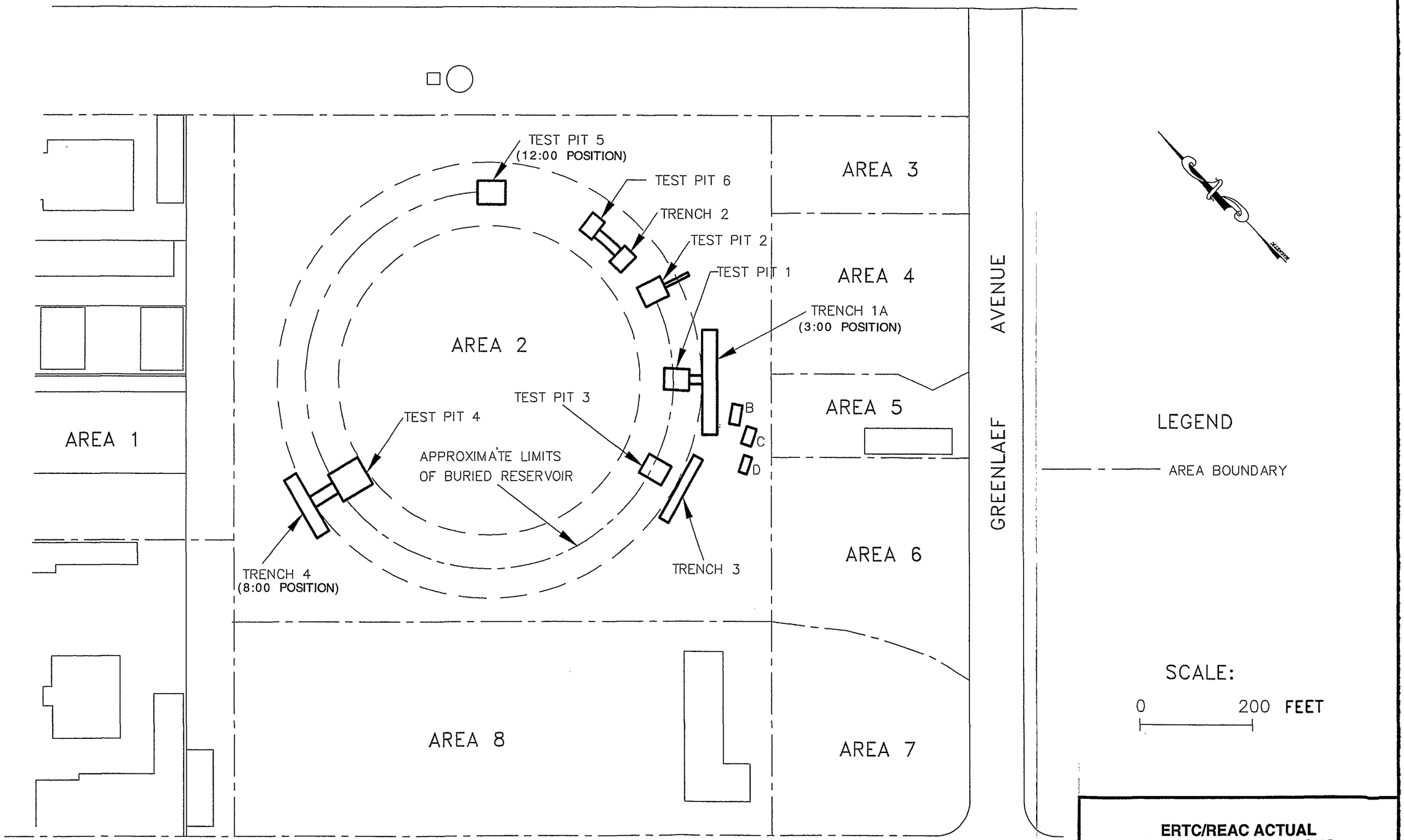
DIPOLE-DIPOLE RESISTIVITY PSEUDO-SECTION

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 2.6

94-256RDISR REV. 4/15/99



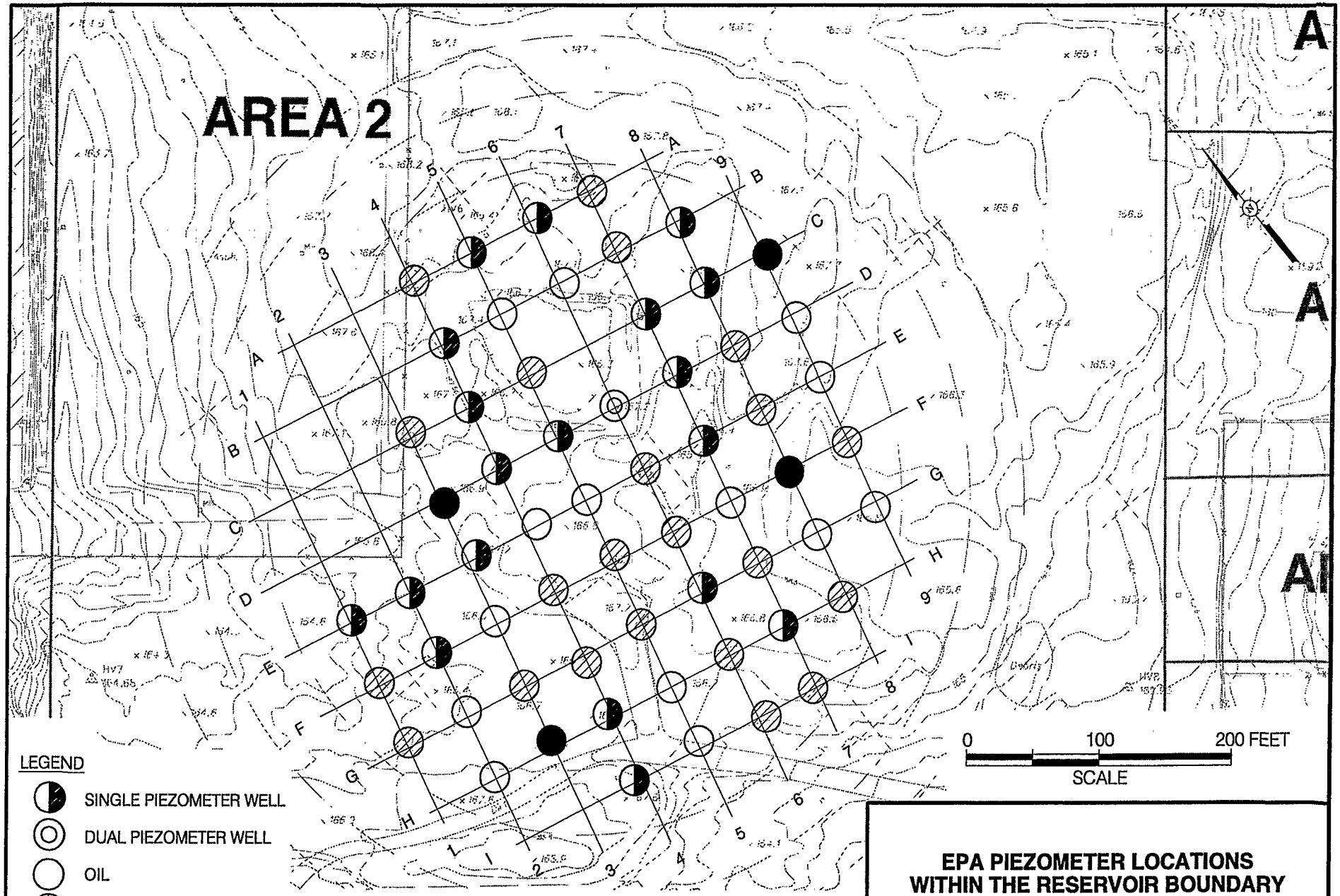
TEST PIT AND TRENCH DIMENSIONS ARE NOT TO SCALE

SOURCE: U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER.

ERTC/REAC ACTUAL EXCAVATION LOCATIONS DECEMBER 1998

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | **FIGURE 2.7**



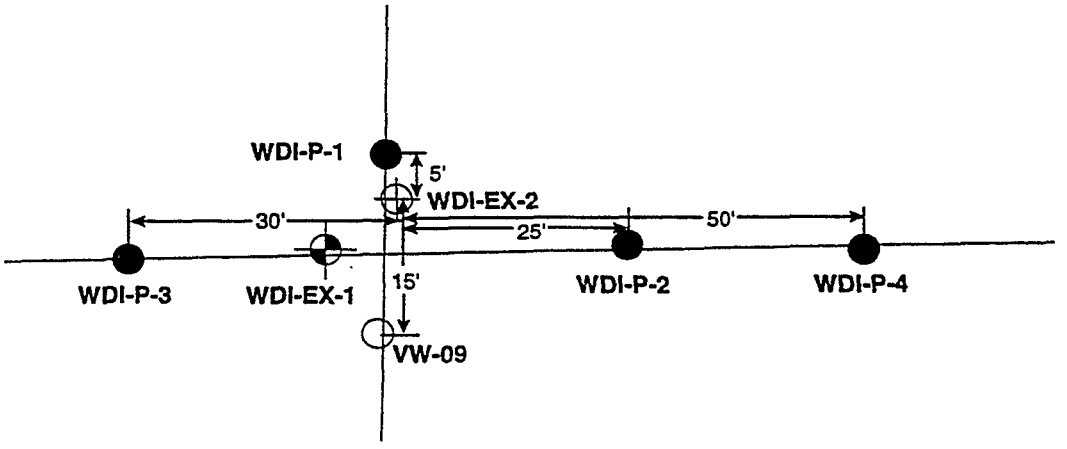
REFERENCE: CDM FEDERAL PROGRAMS CORPORATION, GEOPROBE OBSERVATIONS, DATE JULY 28, 1998

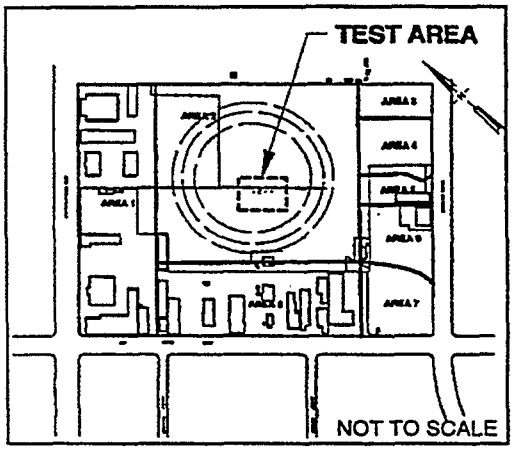
EPA PIEZOMETER LOCATIONS WITHIN THE RESERVOIR BOUNDARY

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

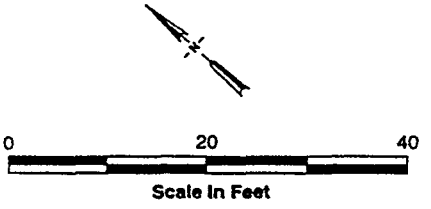
FIGURE 2.8





LEGEND

- Monitoring Probe
- Existing Vapor Well
- Existing Well
- Extraction Well installed for TM 6



SOURCE: *Report of Findings*
Technical Memorandum No. 6
Prepared by WDI Group

REFERENCE: Nunez Engineering, Sheet 1
July 7, 1998

98P-2529

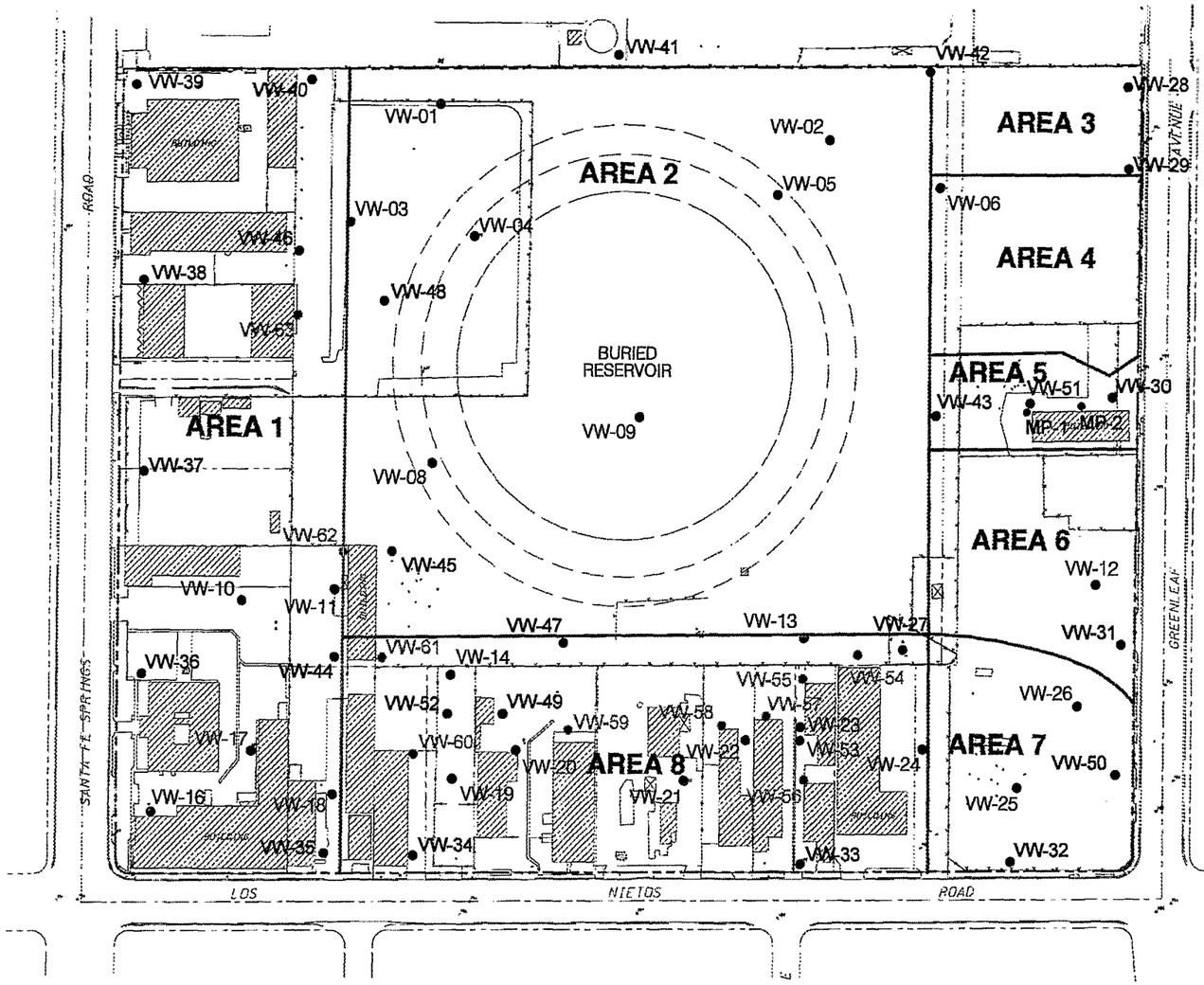
SOURCE: WESTON, FIGURE 1.

EXTRACTION WELL AND MONITORING PROBE LOCATIONS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | FIGURE 2.9

94-256RDISR-04REV. 04/06/99



LEGEND

- SITE BOUNDARY
- AREA BOUNDARY
- MP-1 ● MONITORING PROBE
- VW-16 ● RI/FS VAPOR WELLS
- VW-36 ● WDIG VAPOR WELL
- VW-61 ● EPA VAPOR WELL
- — NOT TESTED
- (1) ELEVATED DETECTION LIMIT
- (2) CHECK

0 200 400 FEET
SCALE

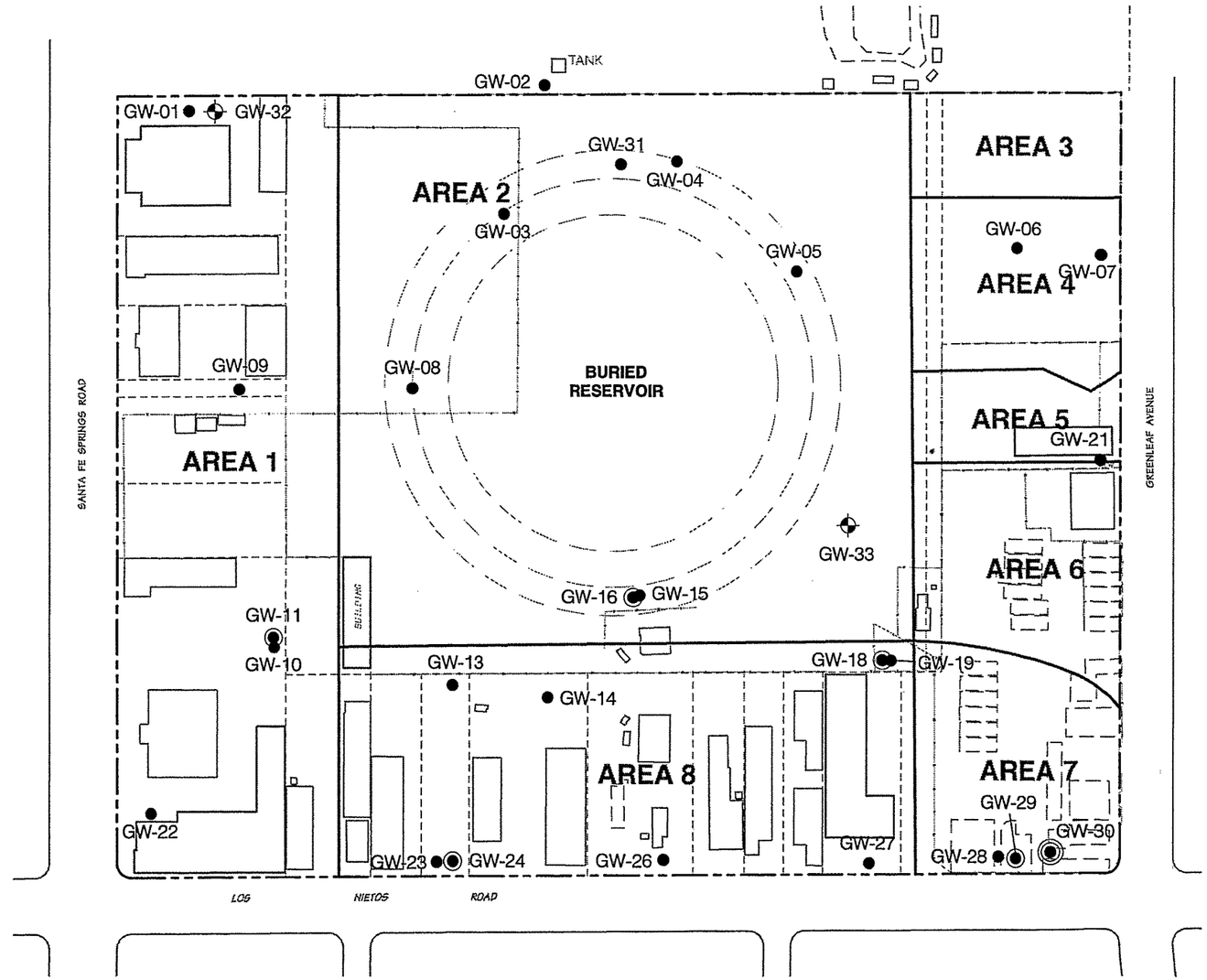
REFERENCE: NUNEZ ENGINEERING, SURVEY DRAWING NE 97187, OCT. 31, 1997.

EXISTING VAPOR WELL NETWORK

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | **FIGURE 2.10**

94-256RDISR-05 REV. 04/06/99



LEGEND

- GW-01 — SHALLOW GROUND WATER MONITORING WELL
- GW-16 — INTERMEDIATE GROUND WATER MONITORING WELL
- GW-30 — DEEP GROUND WATER MONITORING WELL
- GW-32 — PROPOSED MONITORING WELL (TO BE INSTALLED APRIL, 1999)
- SITE BOUNDARY
- AREA BOUNDARY
- FENCE
- EXISTING BUILDING

0 200 400 FEET
SCALE

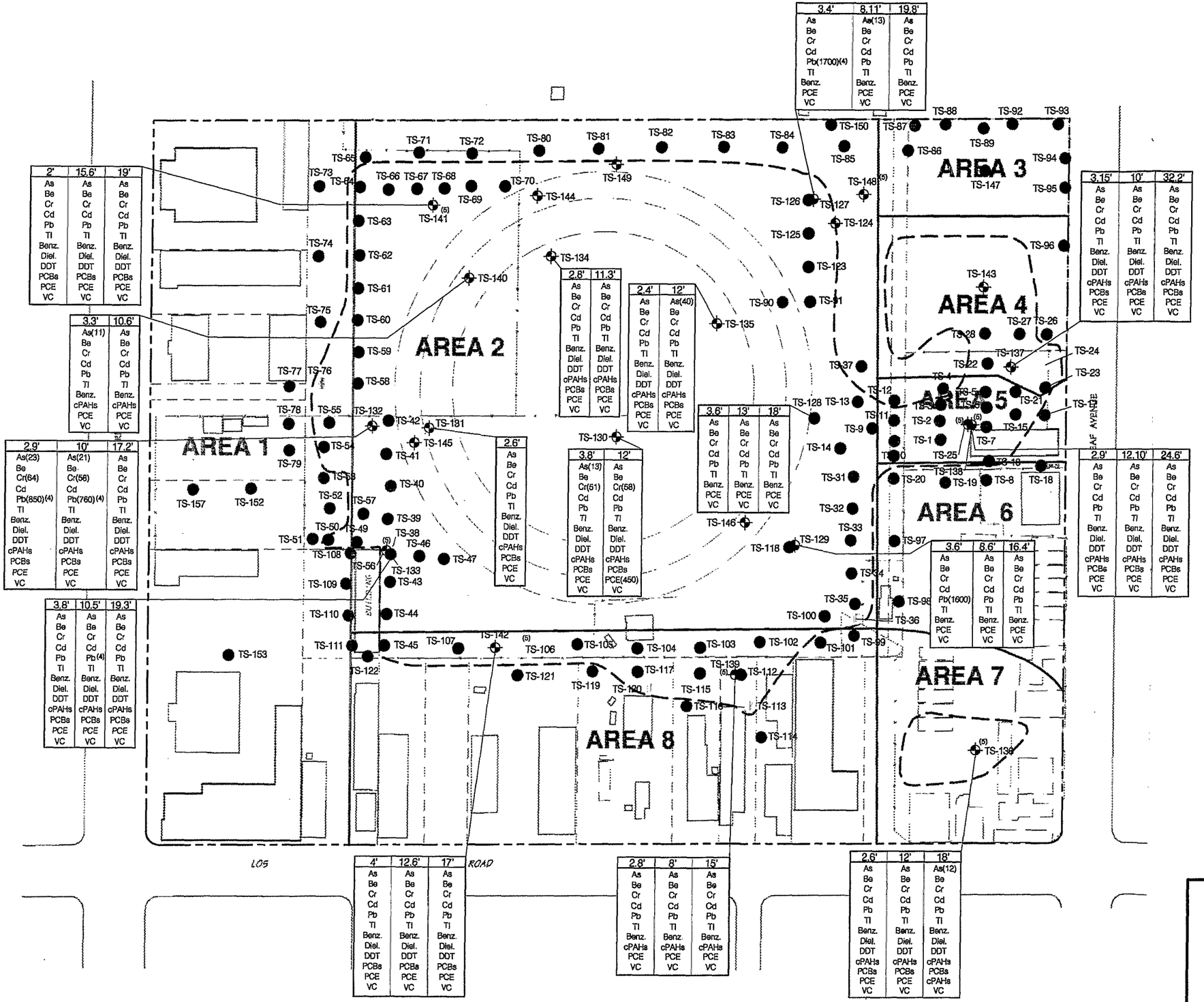
GROUND WATER MONITORING WELL LOCATIONS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 2.11

94-256RDISR-06 REV. 03/31/99



LEGEND

- SITE BOUNDARY
- AREA BOUNDARY
- SUMP-LIKE MATERIAL DELINEATION

WDI GEOPROBES

- IMPACTED MATERIAL WAS NOT ENCOUNTERED
- IMPACTED MATERIAL <3 FEET THICK
- IMPACTED MATERIAL 3-10 FEET THICK
- IMPACTED MATERIAL >10 FEET THICK
- PROBES USED FOR CHEMICAL AND GEOTECHNICAL PROFILE

	COCs	CLEAN-UP STANDARDS[1]
AS	ARSENIC	10.0
Be	BERYLLIUM	1.3[2]
Cr	CHROMIUM	44
Cd	CADMIUM	35
Pb	LEAD	500
Tl	THALLIUM	100[2]
Benz.	BENZENE	2.7
Diel.	DIELDRIN	.11
DDT, DDD, DDE		5
cPAHs		.23
PCBs		.22
PCE	TETRACHLOROETHLENE	17[3]
VC	VINYLCHLORIDE	.035[3]
As	BELOW CLEAN-UP CRITERIA	
As	EQUAL TO OR ABOVE CLEAN-UP CRITERIA	

NOTES:

1. CLEAN-UP STANDARDS BASED ON ROD EXCEPT AS NOTED.
2. BASED ON INDUSTRIAL PRG FOR SOIL FOR SECTIONS 4.1 OF 60% DESIGN.
3. BASED ON INDUSTRIAL PRG FOR SOIL (USEPA, 1996).
4. TCLP TESTS ARE BEING CONDUCTED ON INDICATED SAMPLES TO DETERMINE LEACHABILITY.
5. SEE TABLE 3.1 FOR GEOTECHNICAL RESULTS.

0 160 320 FEET
SCALE

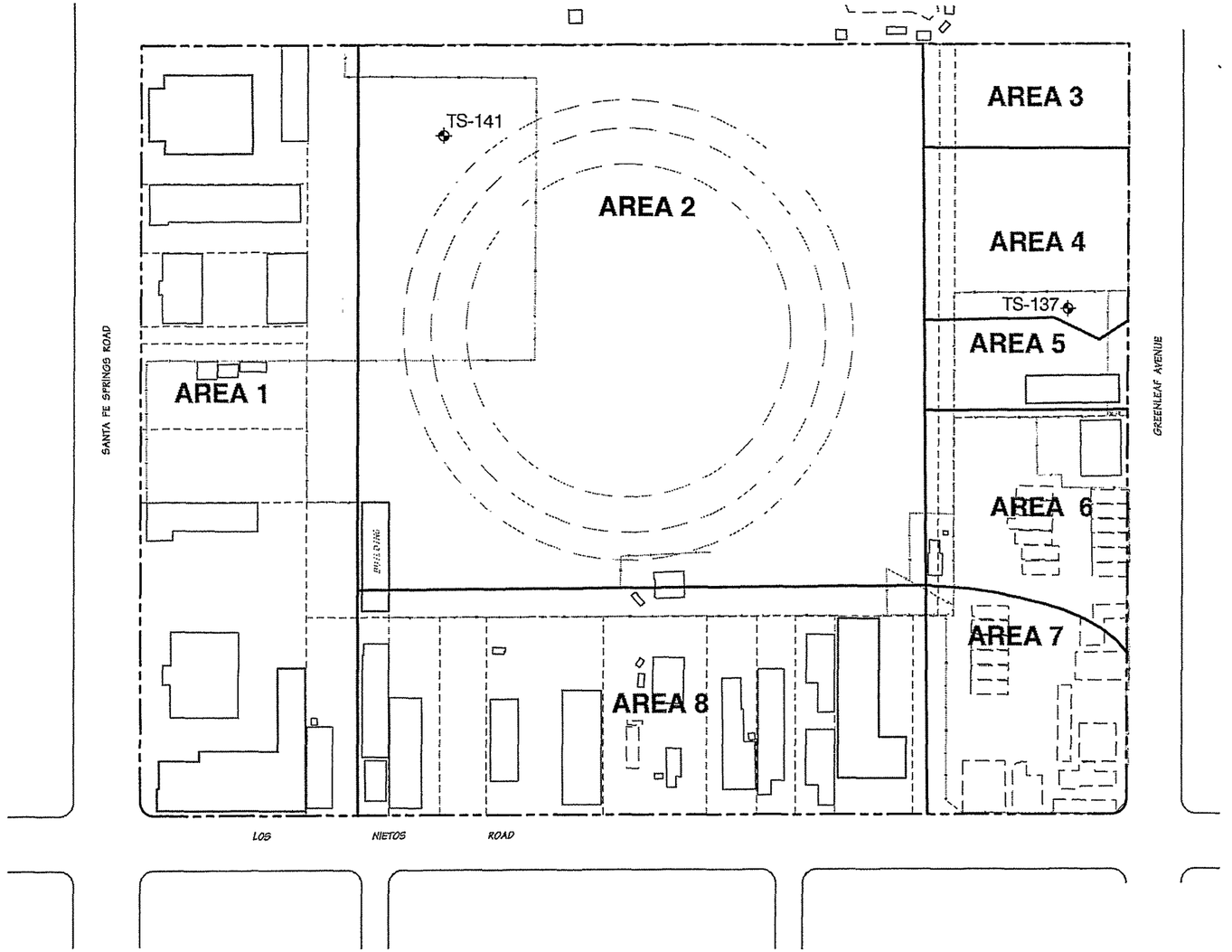
REFERENCE: NUNEZ ENGINEERING, SURVEY DRAWING NE 97187, OCT. 31, 1997.

WDIG GEOPROBE SOIL DATA SUMMARY

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | FIGURE 3.1

94-256RDISR-07 REV. 04/06/99



PARAMETERS	GEOPROBE LIQUIDS SAMPLE LOCATIONS	
	WDI-TS-137	WDI-TS-141
	OIL	WATER
VOCs (ug/L)(1)		
Acetone	<10	<10
Benzene	<0.5	<0.5
Carbon Disulfide	<2.0	<1.0
Methyl ethyl ketone	<10.0	<3.0
Methyl isobutyl ketone	<4.0	<3.0
Trichloroethene	<0.5	<0.5
Vinyl chloride	<5	<0.5
cis-1,2-Dichloroethene	<0.5	<0.5
trans-1,2-Dichloroethene	<0.5	<0.5
Tetrachloroethene	<0.5	<0.5

LEGEND

- SITE BOUNDARY
- AREA BOUNDARY
- GEOPROBE LIQUIDS SAMPLE LOCATIONS

N

0 200 400 FEET

SCALE

NA = ANALYZED

(1) ONLY THOSE PARAMETERS WHICH HAD MEASURABLE CONCENTRATIONS IN ONE OR MORE OF THE ANALYSES SHOWN ARE LISTED. THE PARAMETER LIST OF THE VARIOUS ANALYSES IS MUCH MORE COMPREHENSIVE.
(2) THIS ANALYSES HAD ELEVATED DETECTION LIMITS.

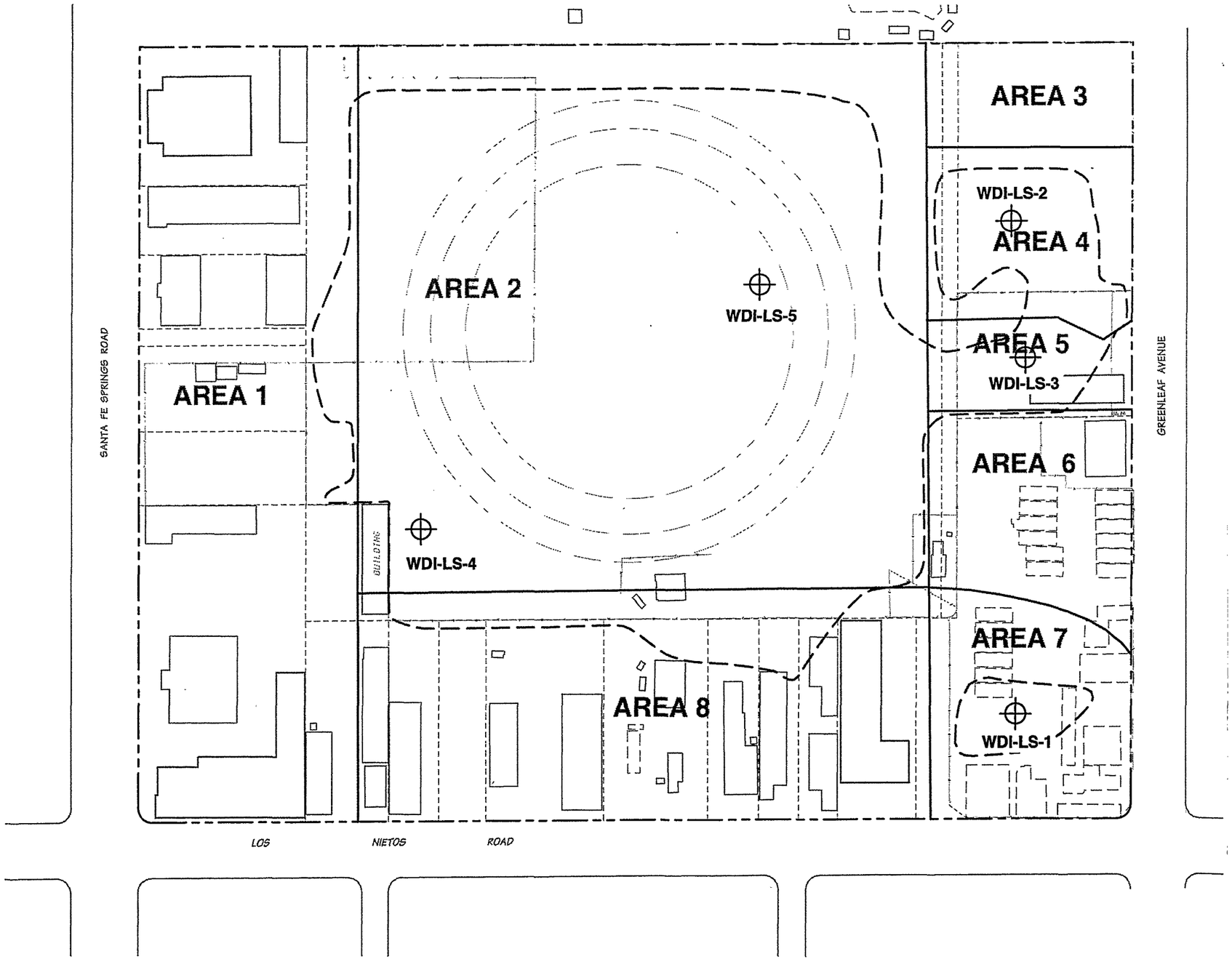
LOCATIONS OF GEOPROBE LIQUIDS SAMPLES AND ANALYSES RESULTS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.2

94-256HDISR-08 REV.03/30/99



LEGEND

- SITE BOUNDARY
- AREA BOUNDARY
- WASTE MATERIAL DELINEATION
- APPROXIMATE TM NO. 10 SOIL SAMPLE LOCATIONS

WDI-LS-4

NOTE: WASTE MATERIAL DELINEATION WAS DETERMINED BASED ON GEOPROBE DATA COLLECTED DURING SEPTEMEBER AND OCTOBER 1997.

0 160 320 FEET
SCALE

REFERENCE: NUNEZ ENGINEERING, SURVEY DRAWING NE 97187, OCT. 31, 1997.

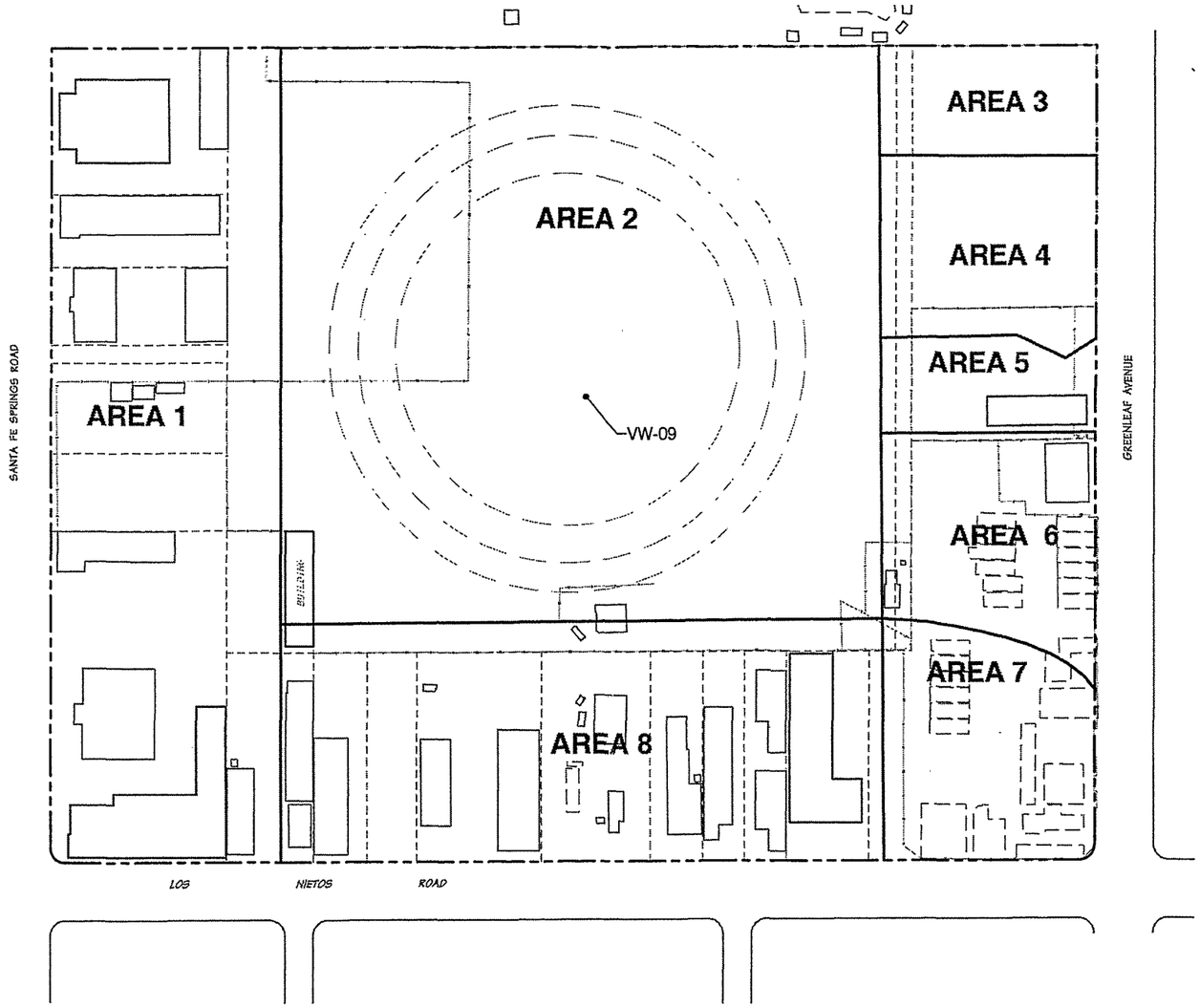
TM NO. 10
SOIL SAMPLE LOCATIONS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | **FIGURE 3.3**

94-259RDISR-09 REV. 04/06/99

PARAMETERS	RESERVOIR LIQUIDS SAMPLE LOCATION	
	VW-09	
	OIL	WATER
TOTAL METALS (mg/L)		
Arsenic	NA	0.19
Antimony		<0.1
Barium		0.41
Beryllium		<0.001
Cadmium		<0.005
Chromium		0.011
Cobalt		<0.04
Copper		0.030
Lead		0.025
Mercury		<0.0002
Molybdenum		0.54
Nickel		0.094
Selenium		<0.004
Silver		<0.01
Thallium		<0.07
Vanadium		<0.04
Zinc		0.030
Aluminum		4.3
Calcium		31
Iron		2.8
VOCs (ug/L) (1)		
Acetone	NA	350
Benzene		760
Carbon Disulfide		72
Methyl ethyl ketone		1,800
Methyl isobutyl ketone		820
Trichlorethene		11
Vinyl chloride		11
cis-1,2-Dichloroethene		110
trans-1,2-Dichloroethene		2
Tetrachloroethene		<0.5
SVOCs (ug/L) (1)(2)		
2,4-Dimethylphenol		700
2-Methylnaphtalene	1,500	890
2-Methylphenol (o-Cresol)		690
4-Methylphenol (p-Cresol)		1,400
Benzyl Alcohol		1,000
Naphthalene	740	620
Phenol	320	1,000
Pasticides (ug/L) (1)		
p,p'-DDE	NA	0.39
Simulated Distillation (mg/L)		
C10-C11	41,000	NA
C12-C13	61,000	
C14-C15	58,000	
C16-C17	60,000	
C18-C19	40,000	
C20-C23	100,000	
C24-C27	73,000	
C28-C31	83,000	
C32-C35	68,000	
C36-C39	32,000	
C40-C43	<200	
C44+	<200	



NA = ANALYZED

(1) ONLY THOSE PARAMETERS WHICH HAD MEASURABLE CONCENTRATIONS IN ONE OR MORE OF THE ANALYSES SHOWN ARE LISTED. THE PARAMETER LIST OF THE VARIOUS ANALYSES IS MUCH MORE COMPREHENSIVE.
(2) THIS ANALYSES HAD ELEVATED DETECTION LIMITS.

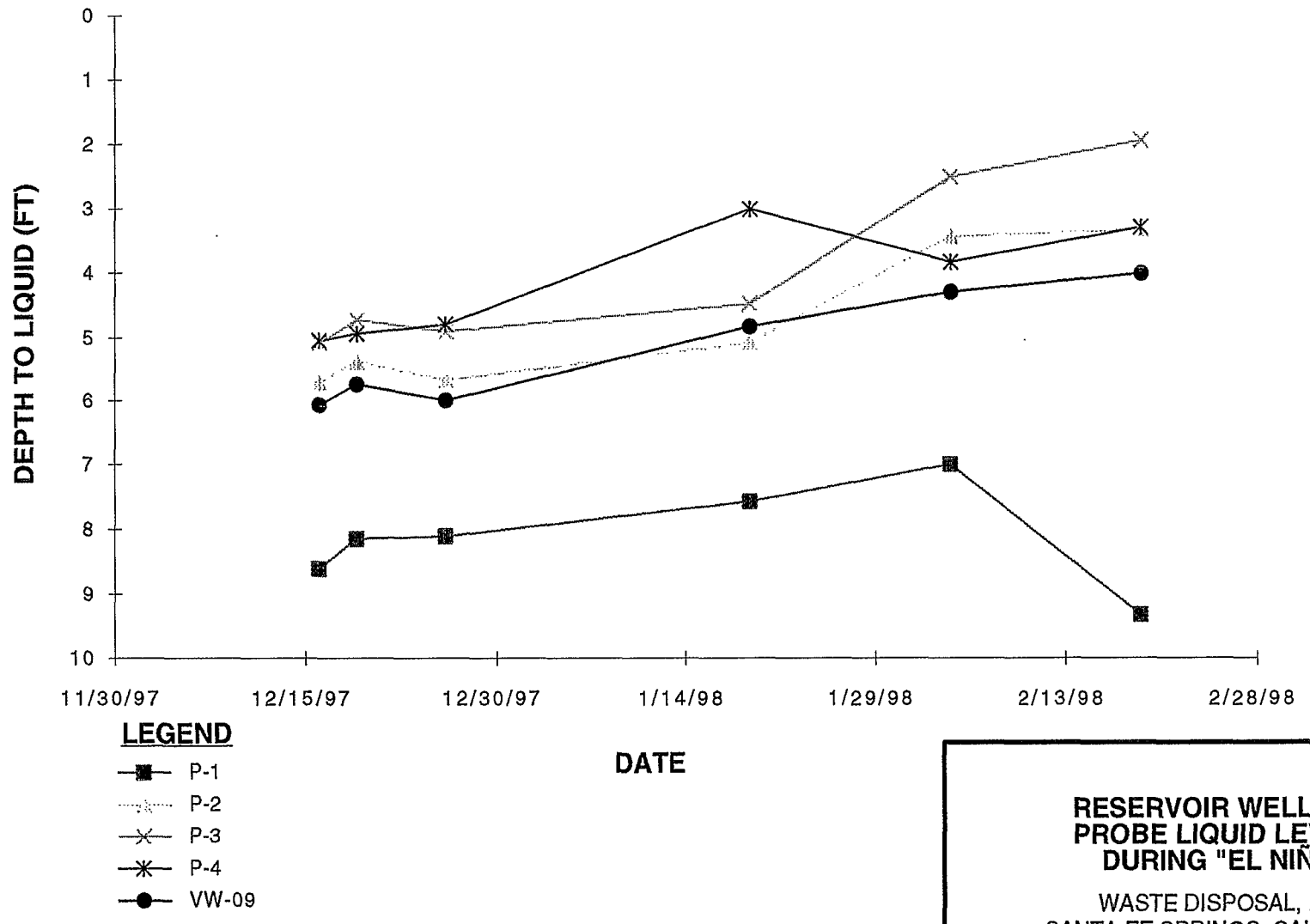
LEGEND
- SITE BOUNDARY
- AREA BOUNDARY

0 200 400 FEET
SCALE

VW-09 LOCATION AND ANALYSIS RESULTS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | FIGURE 3.4

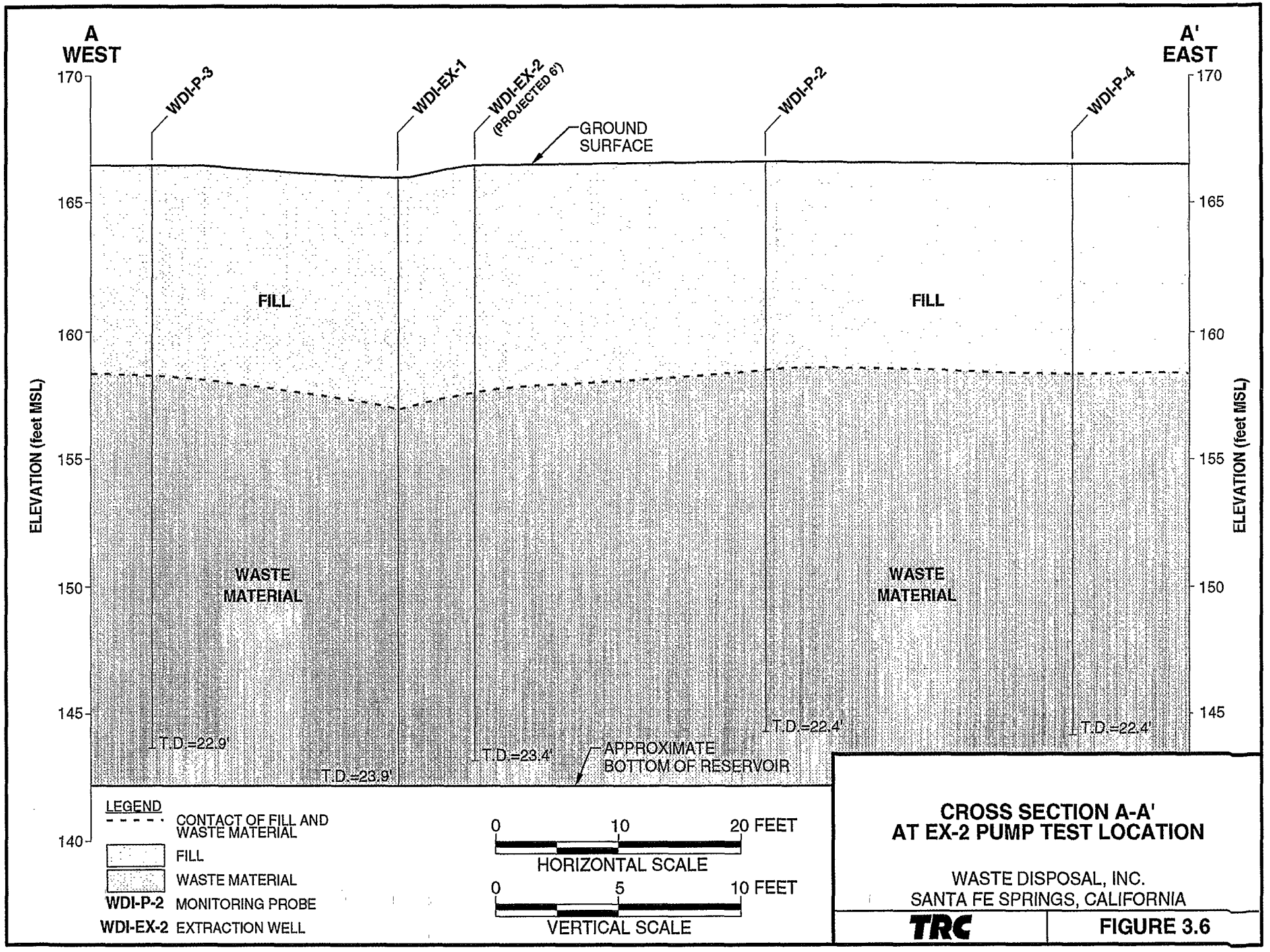


RESERVOIR WELL AND PROBE LIQUID LEVELS DURING "EL NIÑO"

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.5

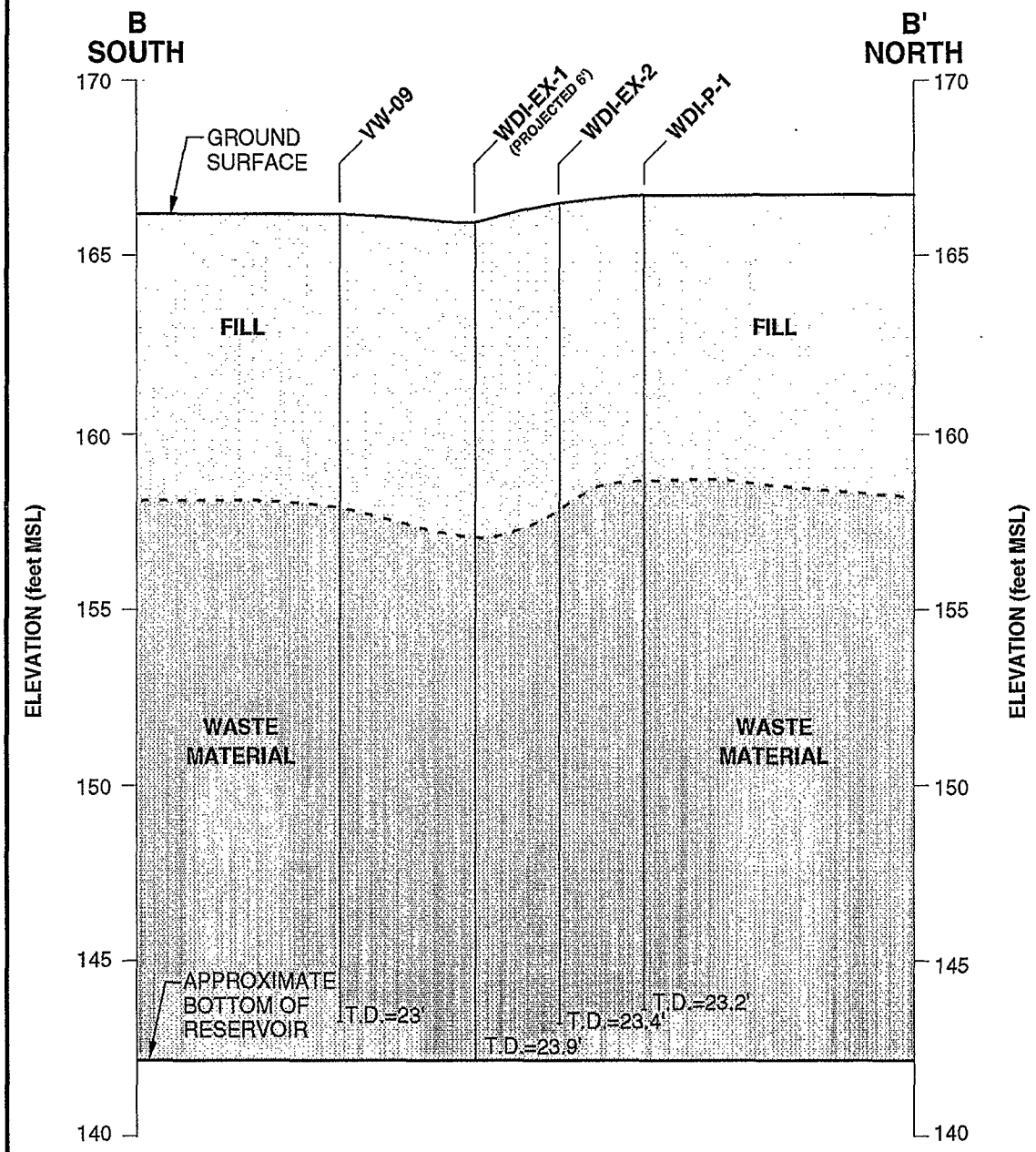


CROSS SECTION A-A'
AT EX-2 PUMP TEST LOCATION

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.6



LEGEND

- - - - - CONTACT OF FILL AND WASTE MATERIAL

FILL

WASTE MATERIAL

WDI-P-1 MONITORING PROBE

WDI-EX-2 EXTRACTION WELL

0 10 20 FEET

HORIZONTAL SCALE

0 5 10 FEET

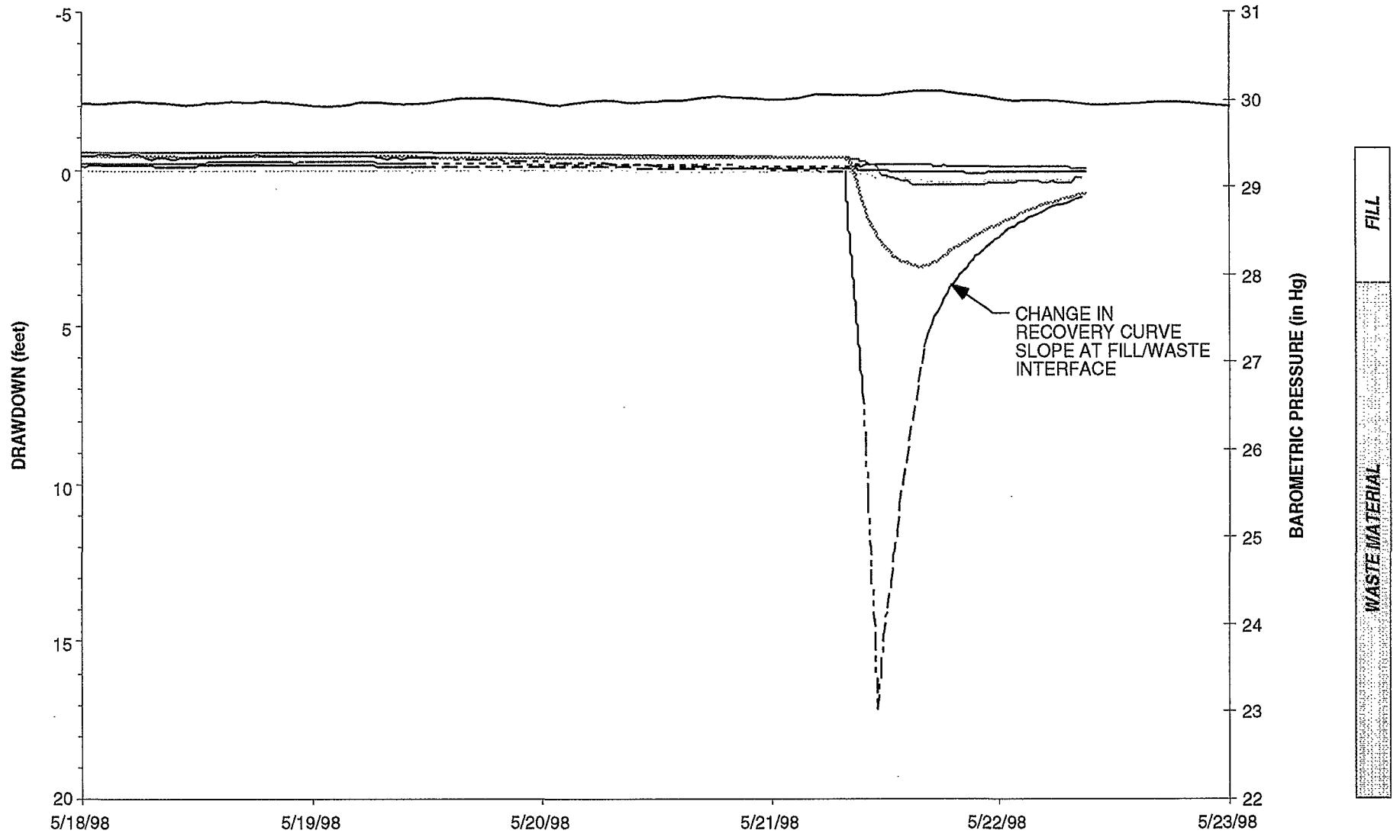
VERTICAL SCALE

CROSS SECTION B-B' AT EX-2 PUMP TEST LOCATION

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.7



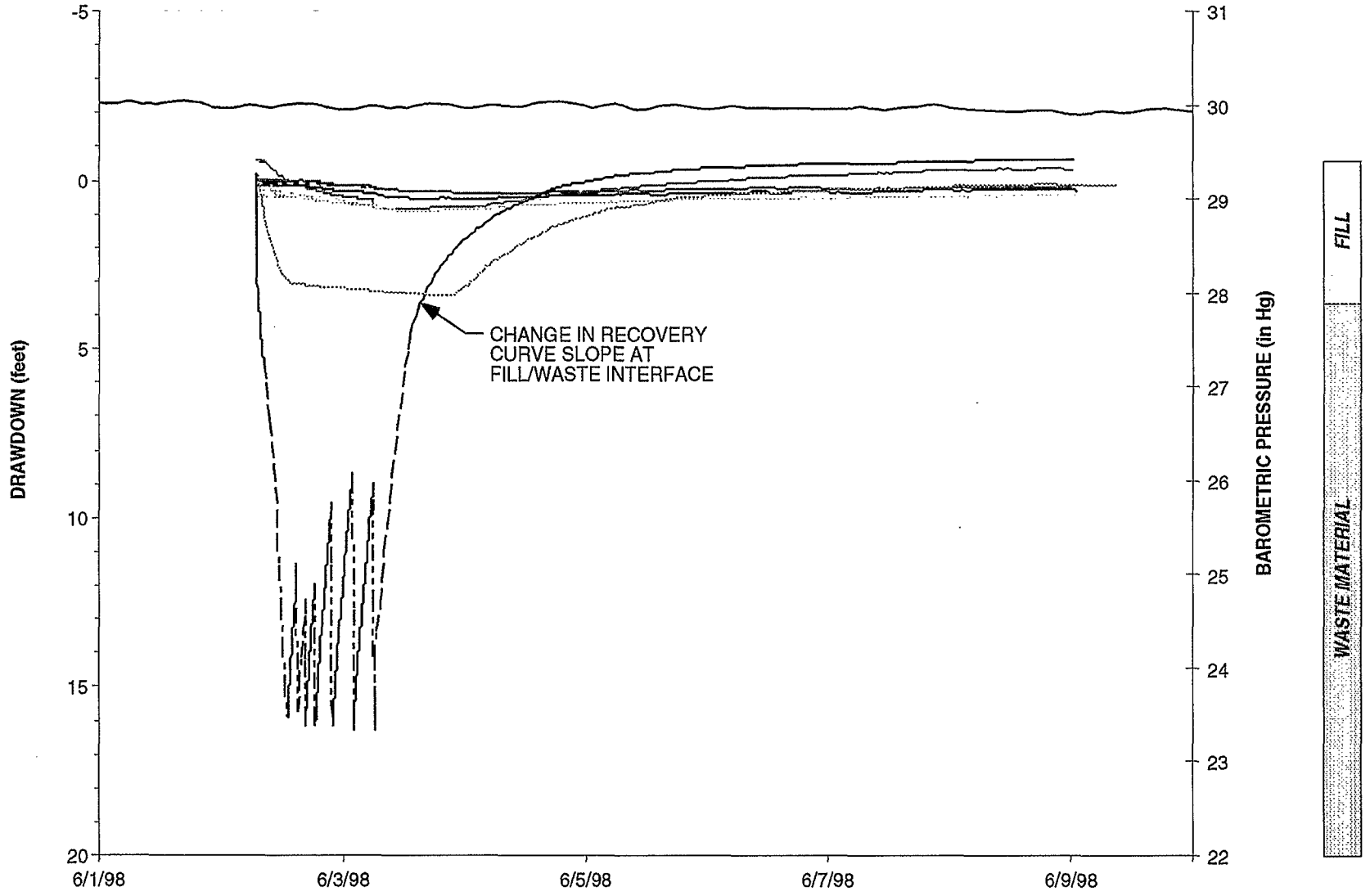
NOTE: THE RECOVERY CURVE LEVEL MONITORING WAS INADVERTENTLY CUTOFF DURING THE TEST DUE TO EQUIPMENT MALFUNCTION.

0.5 GPM TEST DATA

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.8



LEGEND

- P-1
- P-2
- P-3
- P-4
- EX-2
- VW-9
- BAROMETRIC PRESSURE

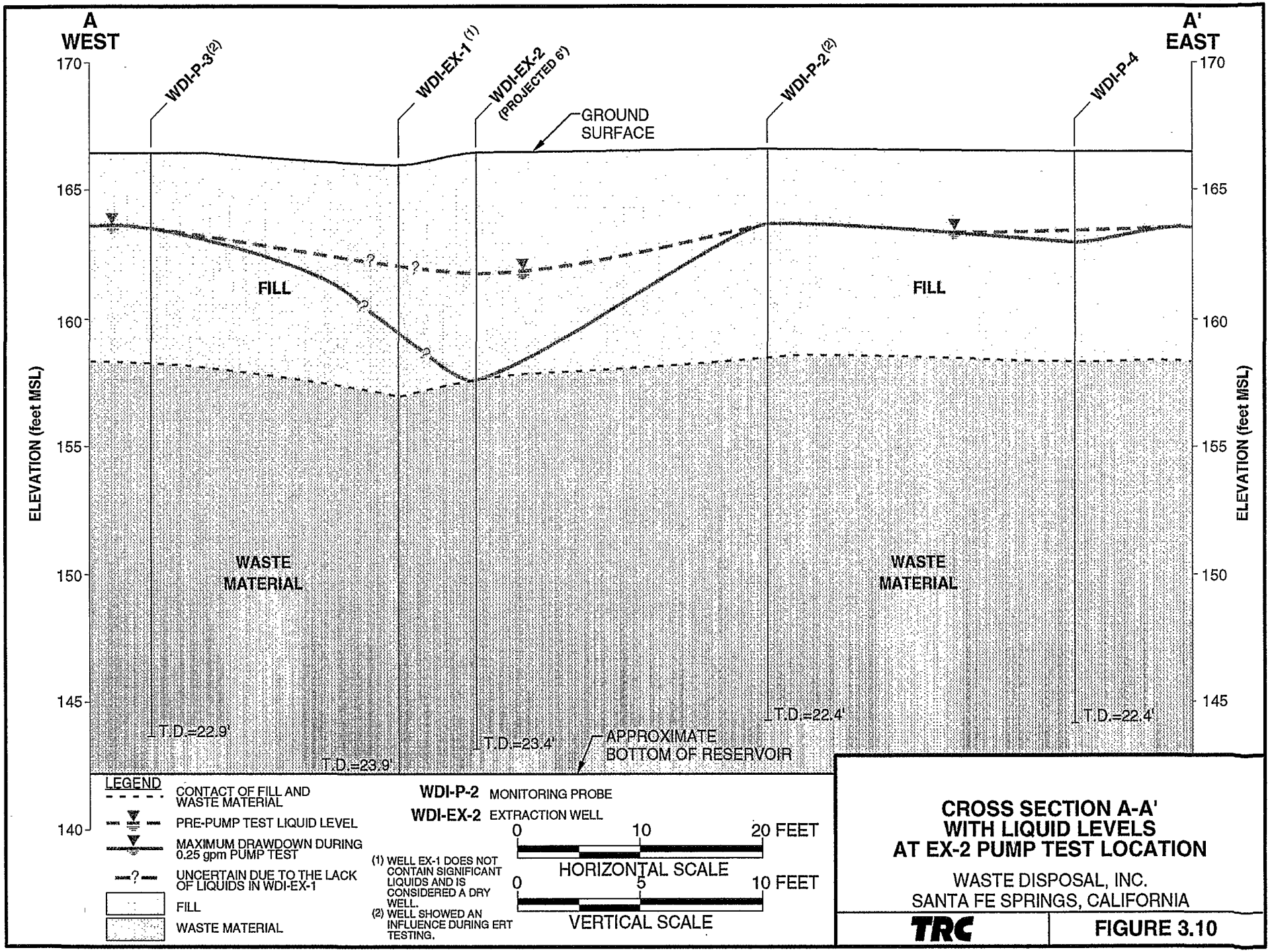
NOTE: THE BASELINE CURVE LEVEL MONITORING WAS INADVERTENTLY CUT OFF DUE TO EQUIPMENT MALFUNCTION.

0.25 GPM TEST DATA AND CYCLE TEST DATA

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.9

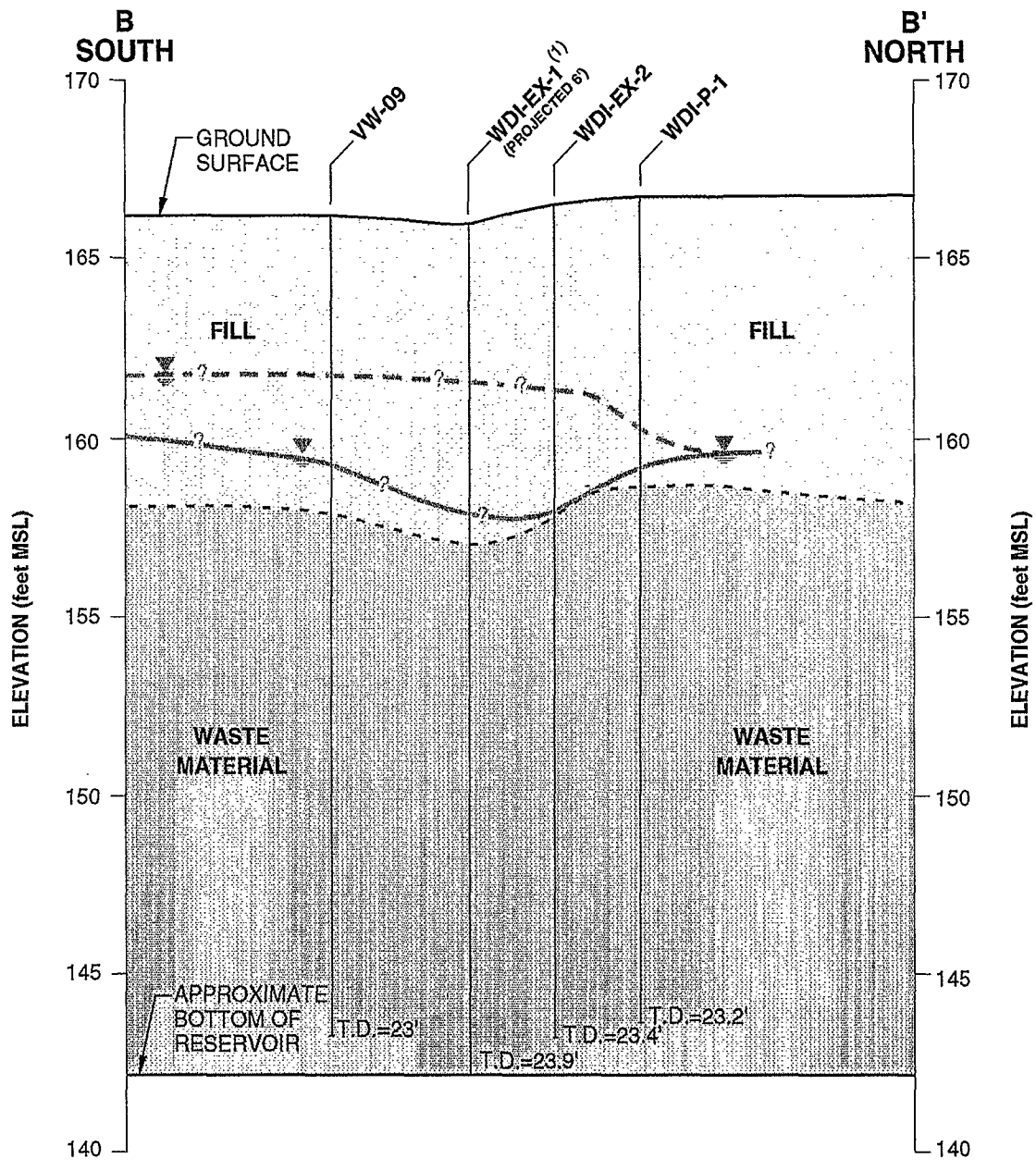


CROSS SECTION A-A' WITH LIQUID LEVELS AT EX-2 PUMP TEST LOCATION

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.10



(1) WELL EX-1 DOES NOT CONTAIN SIGNIFICANT LIQUIDS AND IS CONSIDERED A DRY WELL.

LEGEND

- CONTACT OF FILL AND WASTE MATERIAL
- PRE-PUMP TEST LIQUID LEVEL
- MAXIMUM DRAWDOWN DURING 0.25 gpm PUMP TEST
- UNCERTAIN DUE TO THE LACK OF LIQUIDS IN WDI-EX-1
- FILL
- WASTE MATERIAL
- **WDI-P-1** MONITORING PROBE
- **WDI-EX-2** EXTRACTION WELL
- **VW-09** EXISTING MONITORING PROBE

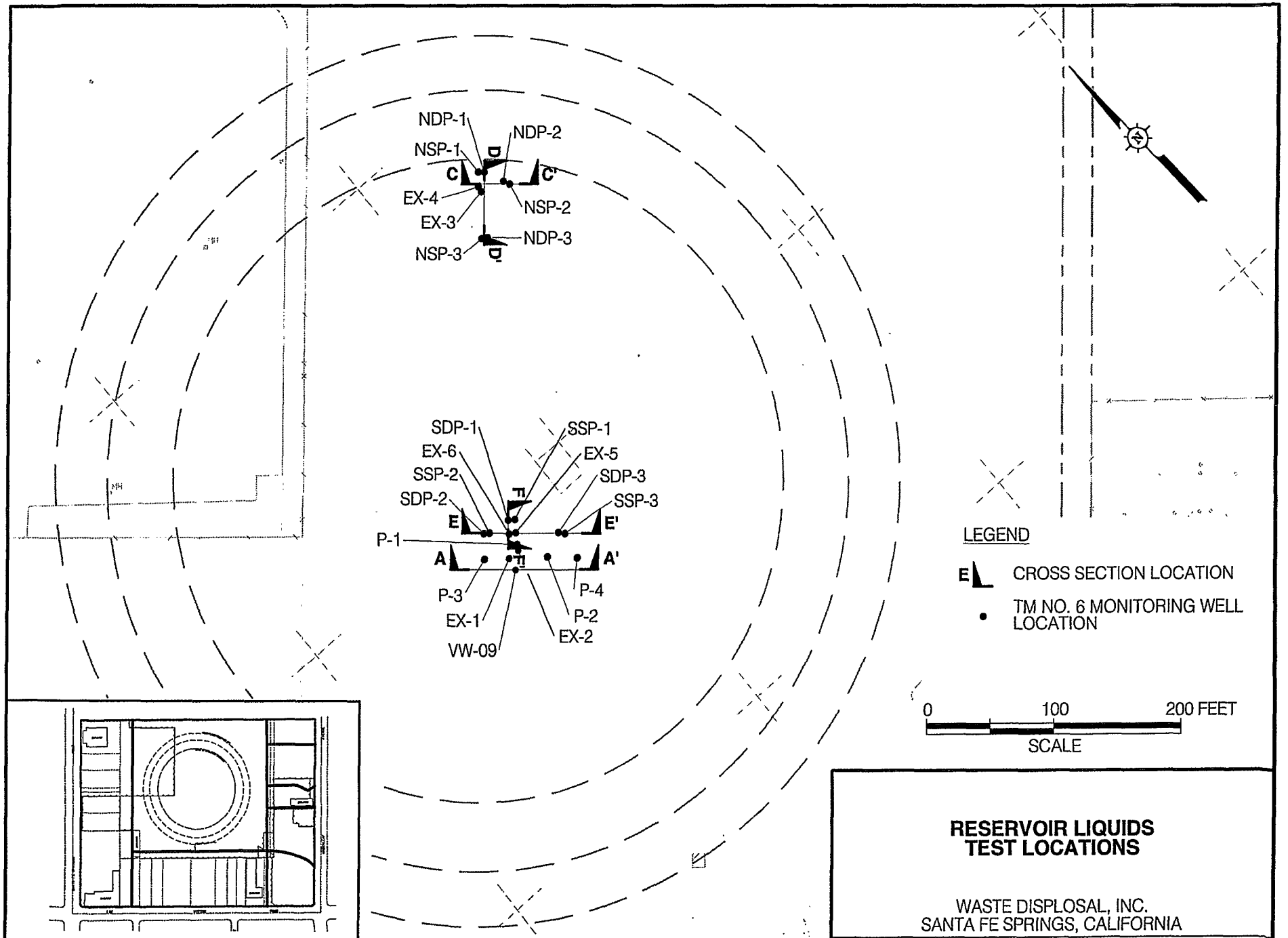
0 10 20 FEET
HORIZONTAL SCALE

0 5 10 FEET
VERTICAL SCALE

CROSS SECTION B-B' WITH LIQUID LEVELS AT EX-2 PUMP TEST LOCATION

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | FIGURE 3.11



KEY SITE MAP

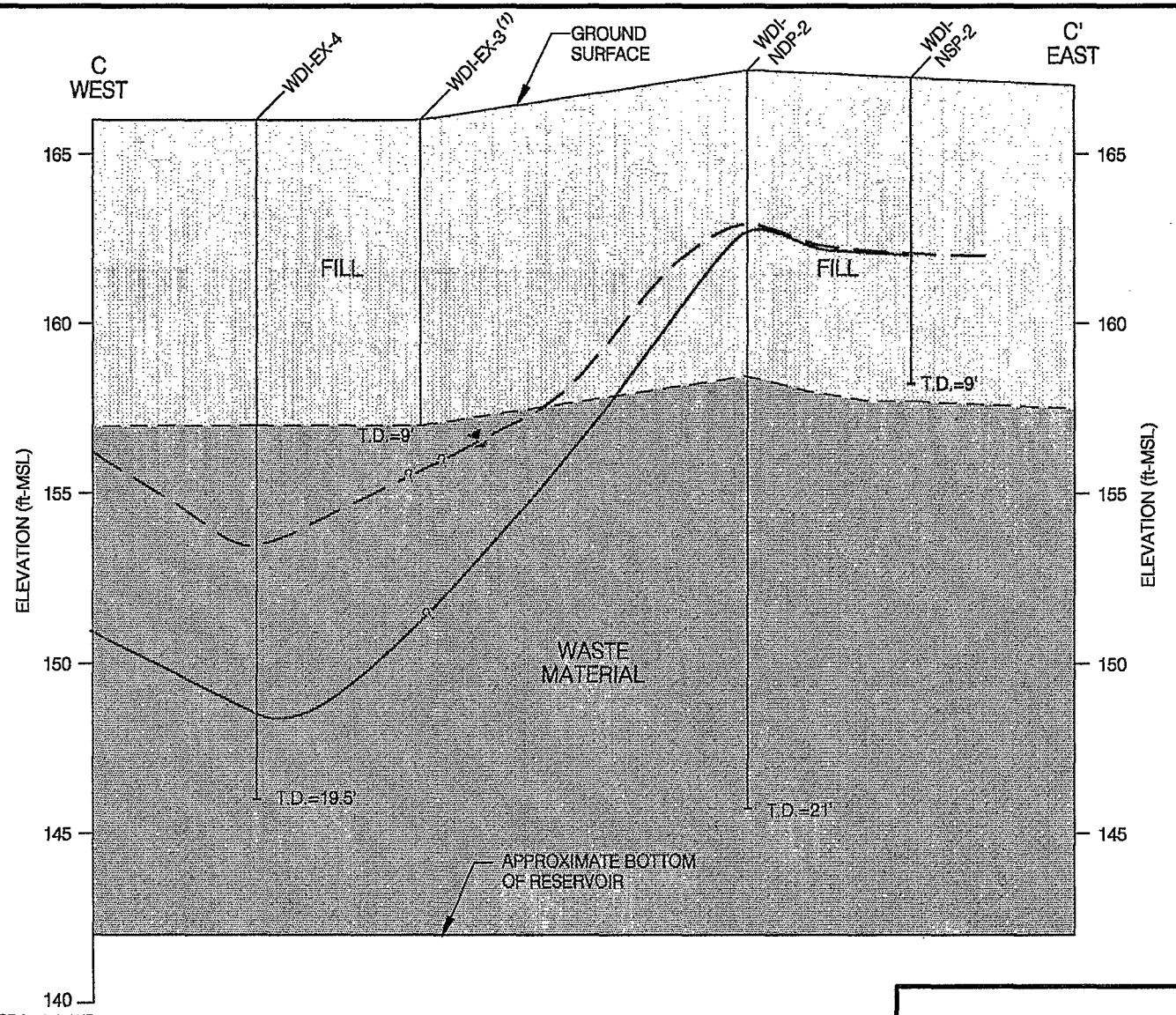
NOTE: SEE FIGURES 3, 4, 10 AND 11 FOR CROSS SECTION DETAILS.

RESERVOIR LIQUIDS TEST LOCATIONS

WASTE DISPLOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.12



LEGEND

- CONTACT OF FILL AND WASTE MATERIAL
- PRE-PUMP TEST LIQUID LEVEL
- MAXIMUM DRAWDOWN DURING PUMP TEST
- UNCERTAIN DUE TO THE LACK OF LIQUIDS IN WDI-EX-3
- FILL
- WASTE MATERIAL

0 5 10 FEET
VERTICAL SCALE

0 10 20 FEET
HORIZONTAL SCALE

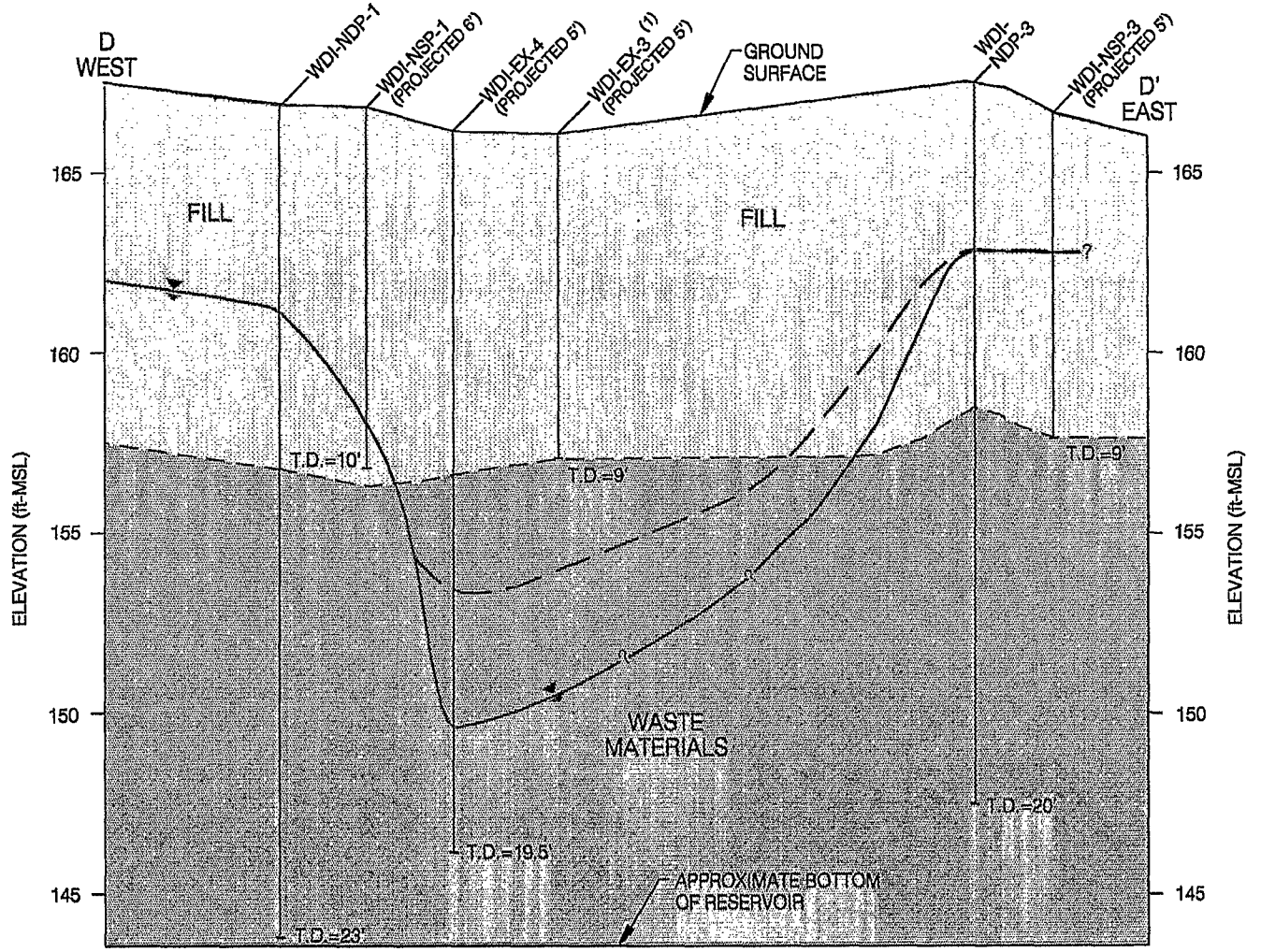
(1) WELL EX-3 DOES NOT CONTAIN SIGNIFICANT LIQUIDS AND IS CONSIDERED A DRY WELL

CROSS SECTION C-C' WITH LIQUID LEVELS AT EX-4 PUMP TEST LOCATION

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.13



LEGEND

- CONTACT OF FILL AND WASTE MATERIAL
- PRE-PUMP TEST LIQUID LEVEL
- MAXIMUM DRAWDOWN DURING PUMP TEST
- ?— UNCERTAIN DUE TO THE LACK OF LIQUIDS IN WDI-EX-3
- FILL
- WASTE MATERIAL

0 5 10 FEET
VERTICAL SCALE

0 10 20 FEET
HORIZONTAL SCALE

(1) WELL EX-3 DOES NOT CONTAIN SIGNIFICANT LIQUIDS AND IS CONSIDERED A DRY WELL.

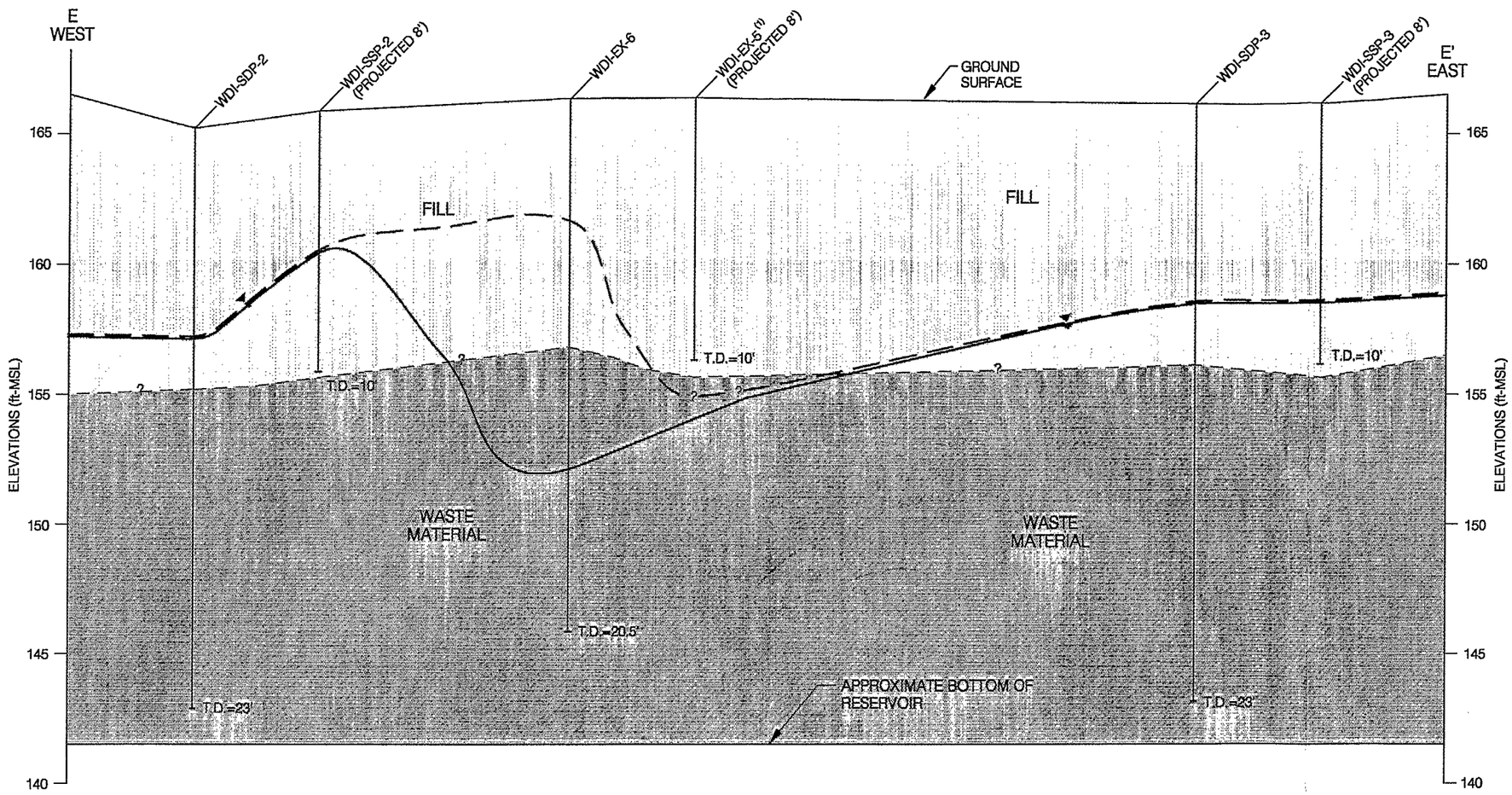
CROSS SECTION D-D' WITH LIQUID LEVELS AT EX-4 PUMP TEST LOCATION

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.14

94-256RDISR-19 REV. 03/31/99



LEGEND

- CONTACT OF FILL AND WASTE MATERIAL
- PRE-PUMP TEST LIQUID LEVEL
- MAXIMUM DRAWDOWN DURING PUMP TEST
- UNCERTAIN DUE TO THE LACK OF LIQUIDS IN WDI-EX-5
- FILL
- WASTE MATERIAL

(1) WELL EX-5 DOES NOT CONTAIN SIGNIFICANT LIQUIDS AND IS CONSIDERED A DRY WELL.

0 5 10 FEET
VERTICAL SCALE

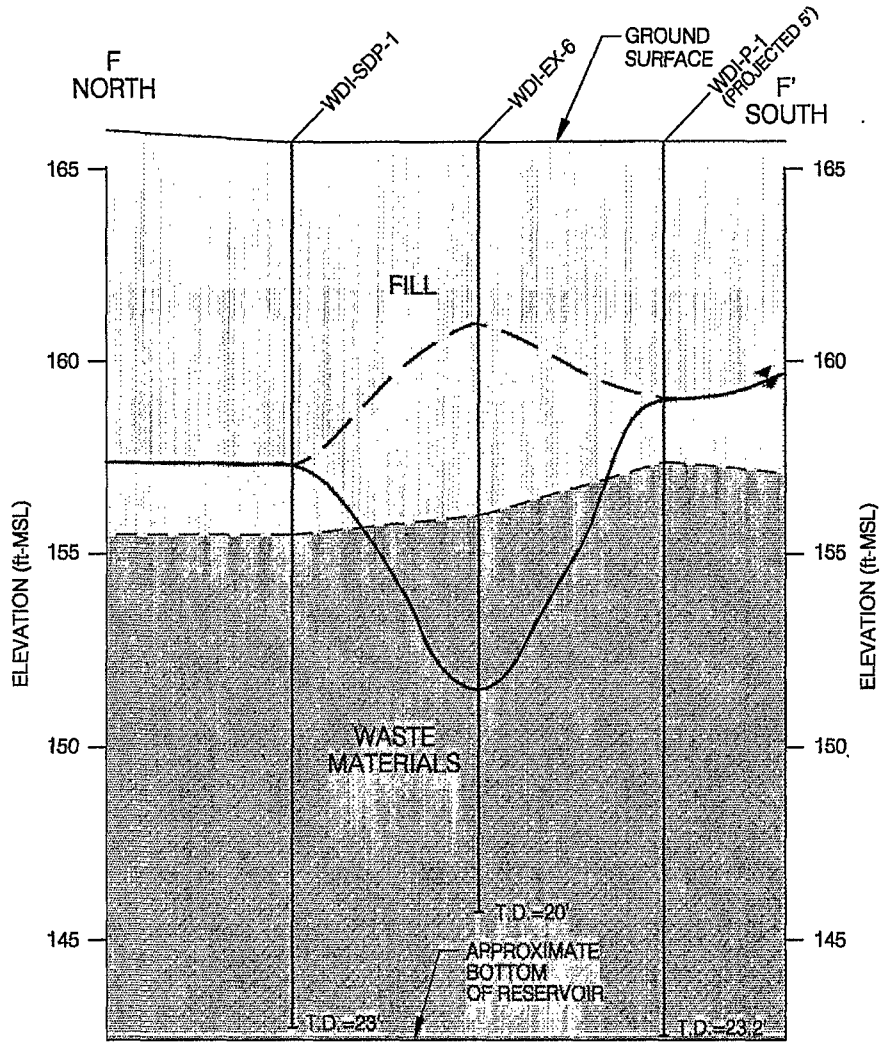
0 10 20 FEET
HORIZONTAL SCALE

CROSS SECTION E-E' WITH LIQUID LEVELS AT EX-6 PUMP TEST LOCATION

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.15



LEGEND

- CONTACT OF FILL AND WASTE MATERIAL
- PRE-PUMP TEST LIQUID LEVEL
- MAXIMUM DRAWDOWN DURING PUMP TEST
- FILL
- WASTE MATERIAL

0 5 10 FEET
VERTICAL SCALE

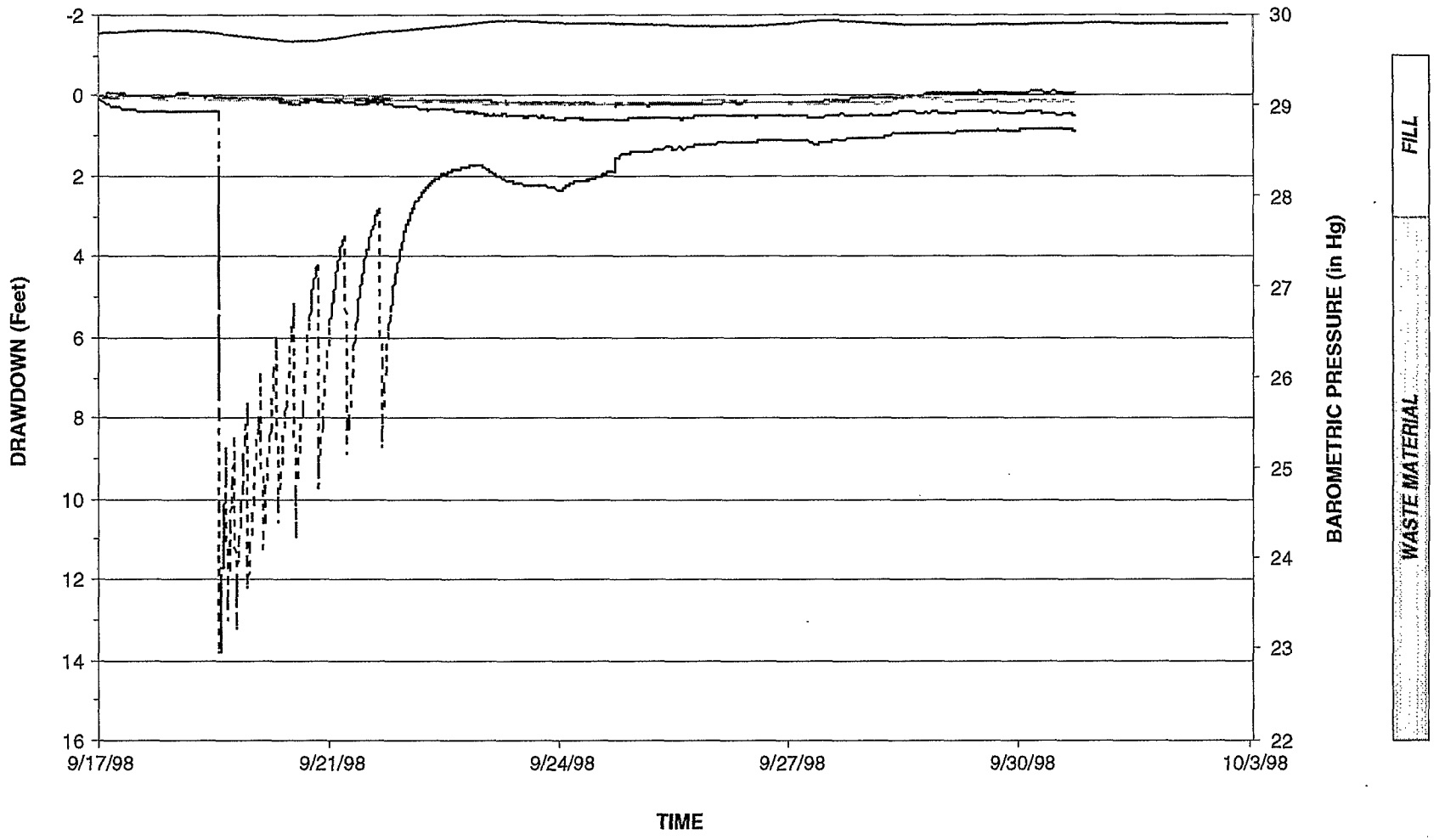
0 10 20 FEET
HORIZONTAL SCALE

CROSS SECTION F-F' WITH LIQUID LEVELS AT EX-6 PUMP TEST LOCATION

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.16



LEGEND

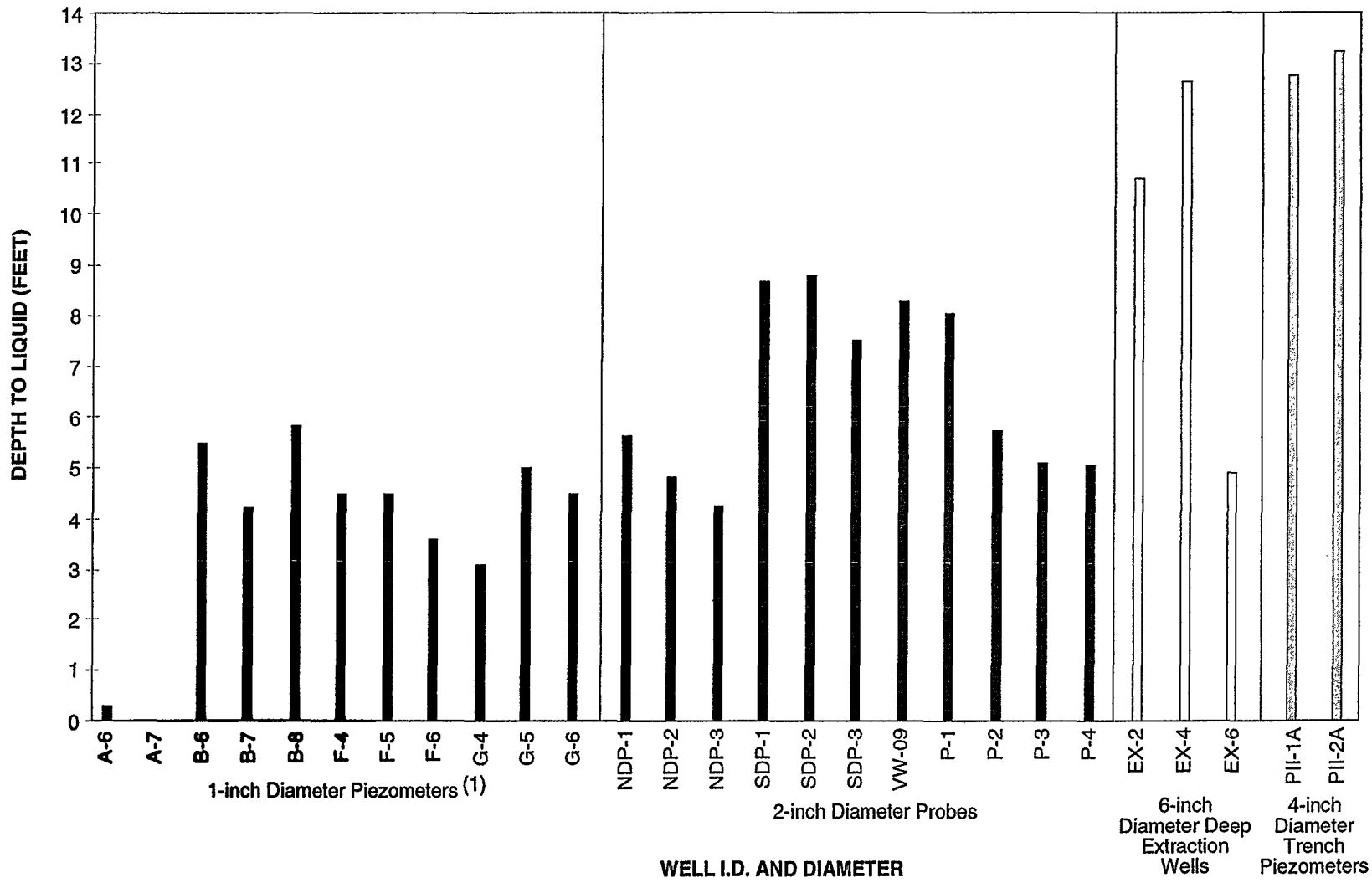
- EX-6
- SDP-1
- SDP-2
- SDP-3
- P-1
- BAROMETRIC PRESSURE

EX-6 PUMP TEST DATA

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.18



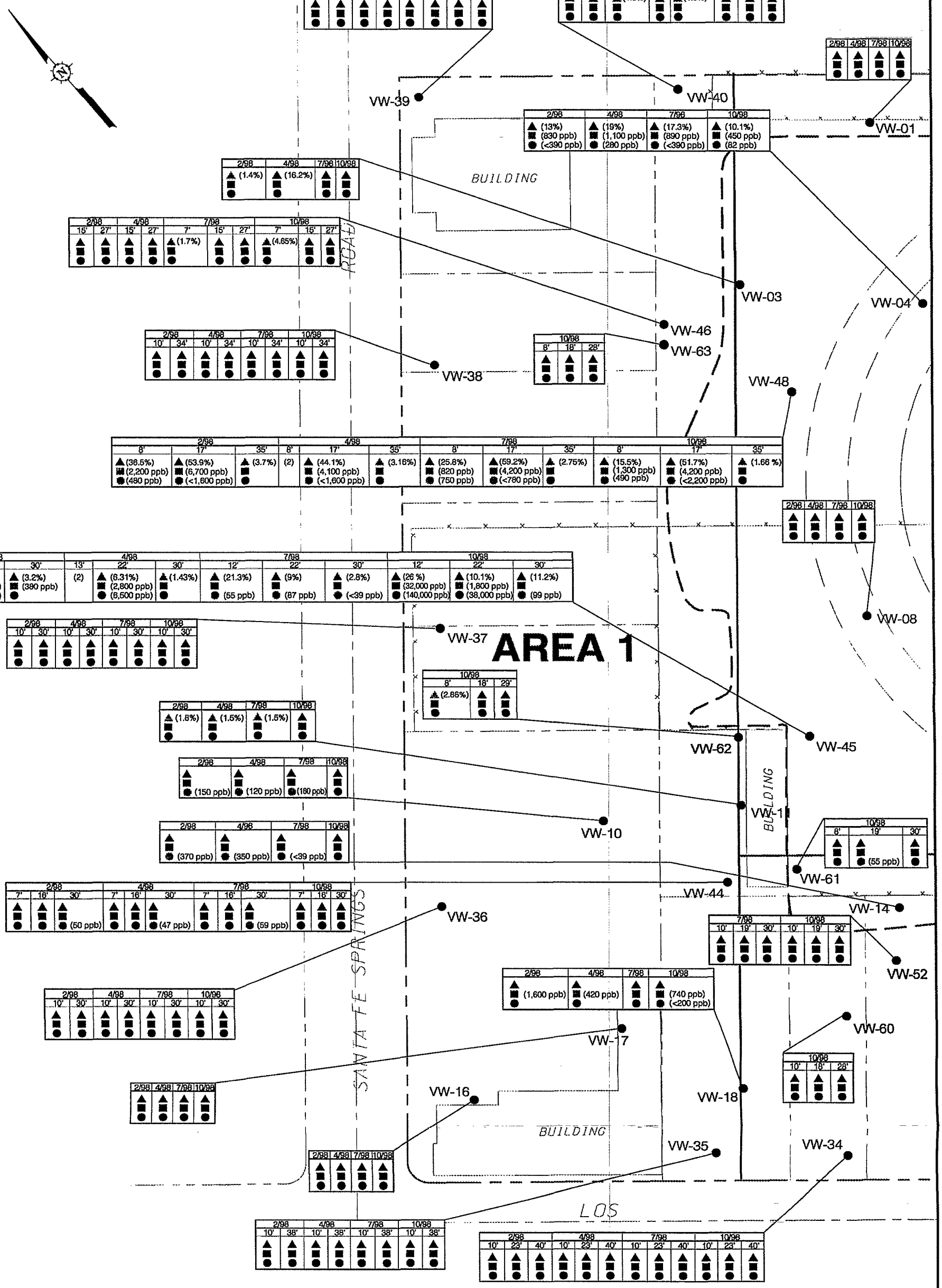
(1) 1-INCH PIEZOMETERS INSTALLED BY EPA, LOCATED WITHIN A 50-FOOT RADIUS OF PUMP TEST AREAS.

LIQUID LEVELS VERSUS DIAMETER OF WELL

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.19



LEGEND

SITE BOUNDARY	▲	METHANE	<1.25%	>1.25% to 5%	>5%
AREA BOUNDARY	■	BENZENE	<200 ppb	>200 ppb to 10,000 ppb	>10,000 ppb
SUMP-LIKE DELINEATION	●	VINYL CHLORIDE	<25 ppb	>25 ppb to 5,000 ppb	>5,000 ppb
RI/FS VAPOR WELLS					
VAPOR WELLS INSTALLED BY OTHERS					
– NOT TESTED					
(1) ELEVATED DETECTION LIMIT					
(2) NOT SAMPLED DUE TO HIGH LIQUID LEVELS					

0 100 200 FEET
SCALE

NOTE:
1. DIFFERENTIATING CRITERIA IS BASED ON IWMB METHANE STANDARD AND EPA INTERIM ACTIVE LEVELS FOR BENZENE AND VINYL CHLORIDE.

SUMMARY OF VAPOR WELL MONITORING RESULTS AREA 1

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.20

94-256RDISR-25 REV. 03/31/99

AREA 2

APPROX. TOE OF RESERVOIRS OUTER BERM

APPROX. TOE OF RESERVOIRS INSIDE BERM

VW-40 VW-41 VW-42 VW-01 VW-02 VW-03 VW-04 VW-05 VW-06 VW-08 VW-09 VW-10 VW-11 VW-13 VW-14 VW-27 VW-43 VW-44 VW-45 VW-46 VW-47 VW-48 VW-49 VW-52 VW-54 VW-55 VW-57 VW-58 VW-61 VW-62 VW-63

LEGEND

- SITE BOUNDARY
- AREA BOUNDARY
- SUMP-LIKE DELINEATION
- RI/FS VAPOR WELLS
- VAPOR WELLS INSTALLED BY OTHERS
- NOT TESTED
- (1) ELEVATED DETECTION LIMIT
- (2) NOT SAMPLED DUE TO HIGH LIQUID LEVELS

▲ METHANE	<1.25%	>1.25% to 5%	>5%
■ BENZENE	<200 ppb	>200 ppb to 10,000 ppb	>10,000 ppb
● VINYL CHLORIDE	<25 ppb	>25 ppb to 5,000 ppb	>5,000 ppb

NOTE:
1. DIFFERENTIATING CRITERIA IS BASED ON IWMB METHANE STANDARD AND EPA INTERIM ACTIVE LEVELS FOR BENZENE AND VINYL CHLORIDE.

0 100 200 FEET
SCALE

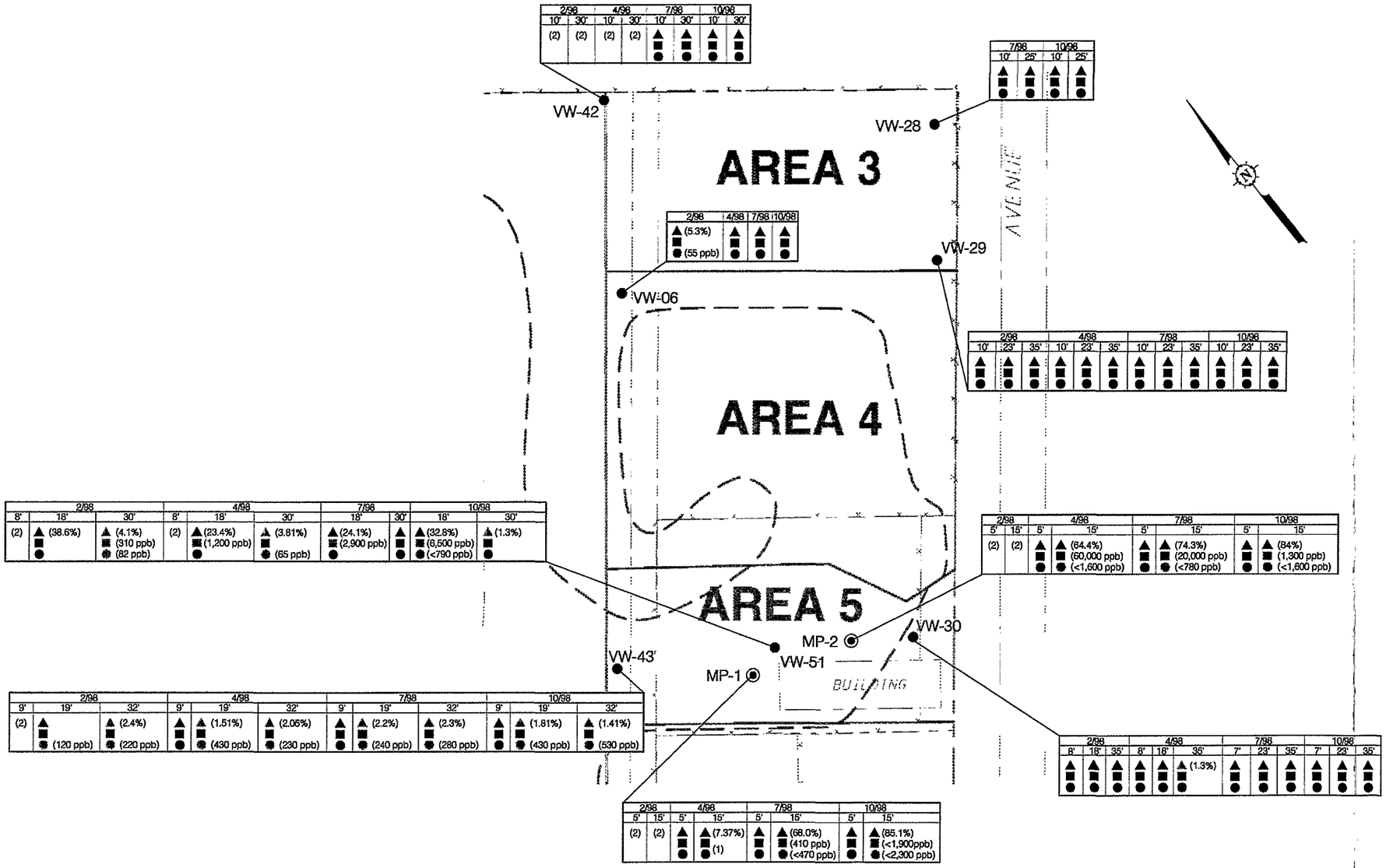
SUMMARY OF VAPOR WELL MONITORING RESULTS AREA 2

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.21

94-256RDISR-26 REV. 03/31/99



LEGEND

SITE BOUNDARY	▲ METHANE	<1.25%	>1.25% to 5%	>5%
AREA BOUNDARY	■ BENZENE	<200 ppb	>200 ppb to 10,000 ppb	>10,000 ppb
SUMP-LIKE DELINEATION	● VINYL CHLORIDE	<25 ppb	>25 ppb to 5,000 ppb	>5,000 ppb
RI/FS VAPOR WELLS				
VAPOR WELLS INSTALLED BY OTHERS				
– NOT TESTED				
(1) ELEVATED DETECTION LIMIT				
(2) NOT SAMPLED DUE TO HIGH LIQUID LEVELS				

NOTE:
1. DIFFERENTIATING CRITERIA IS BASED ON IWMB METHANE STANDARD AND EPA INTERIM ACTIVE LEVELS FOR BENZENE AND VINYL CHLORIDE.

0 100 200 FEET
SCALE

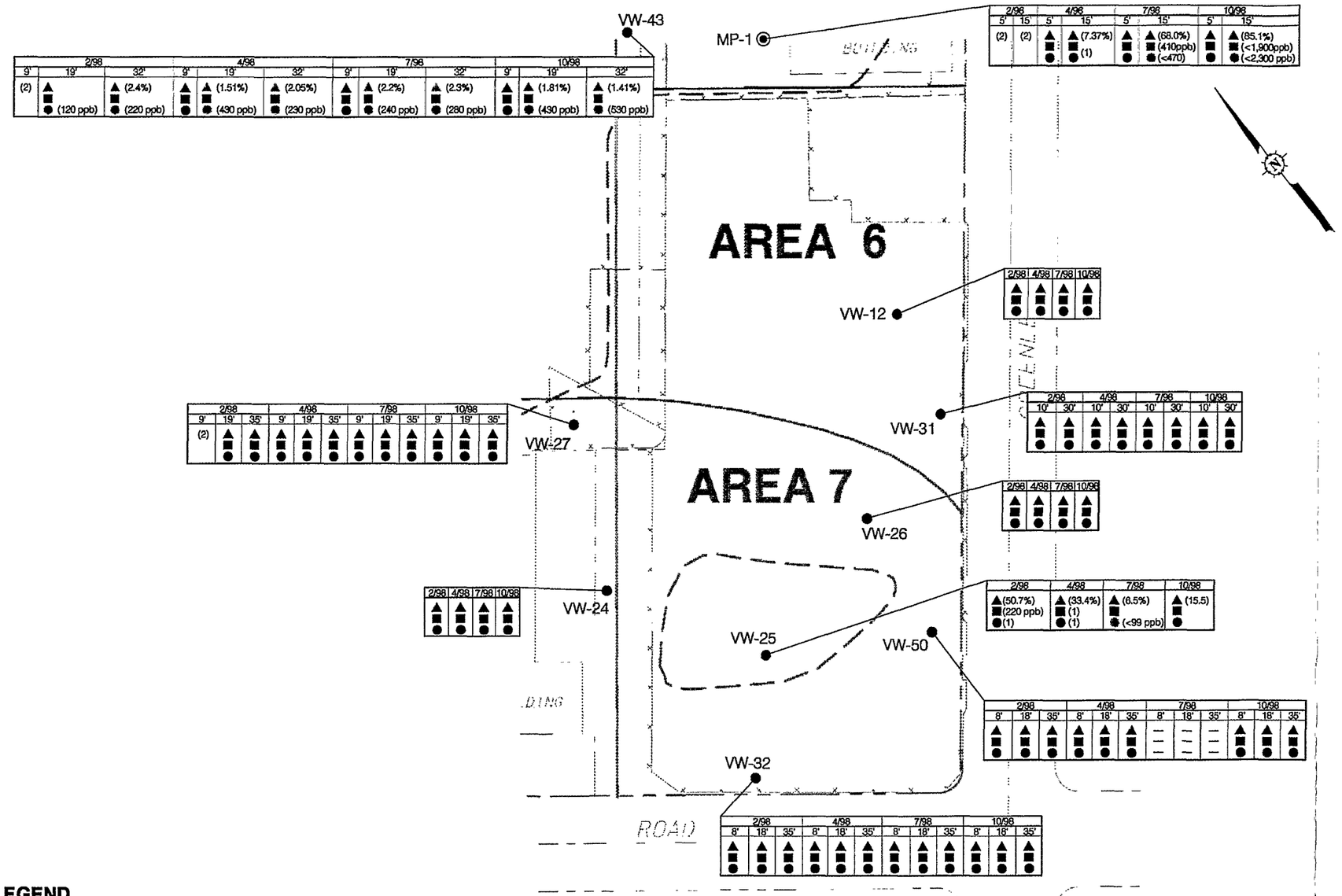
SUMMARY OF VAPOR WELL MONITORING RESULTS AREAS 3, 4 & 5

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.22

94-256R/DISR-27 REV. 03/31/99



LEGEND

SITE BOUNDARY	▲ METHANE	<1.25%	>1.25% to 5%	>5%
AREA BOUNDARY	■ BENZENE	<200 ppb	>200 ppb to 10,000 ppb	>10,000 ppb
SUMP-LIKE DELINEATION	● VINYL CHLORIDE	<25 ppb	>25 ppb to 5,000 ppb	>5,000 ppb
RI/FS VAPOR WELLS				
VAPOR WELLS INSTALLED BY OTHERS				
– NOT TESTED				
(1) ELEVATED DETECTION LIMIT				
(2) NOT SAMPLED DUE TO HIGH LIQUID LEVELS				

NOTE:
1. DIFFERENTIATING CRITERIA IS BASED ON IWMB METHANE STANDARD AND EPA INTERIM ACTIVE LEVELS FOR BENZENE AND VINYL CHLORIDE.

0 100 200 FEET
SCALE

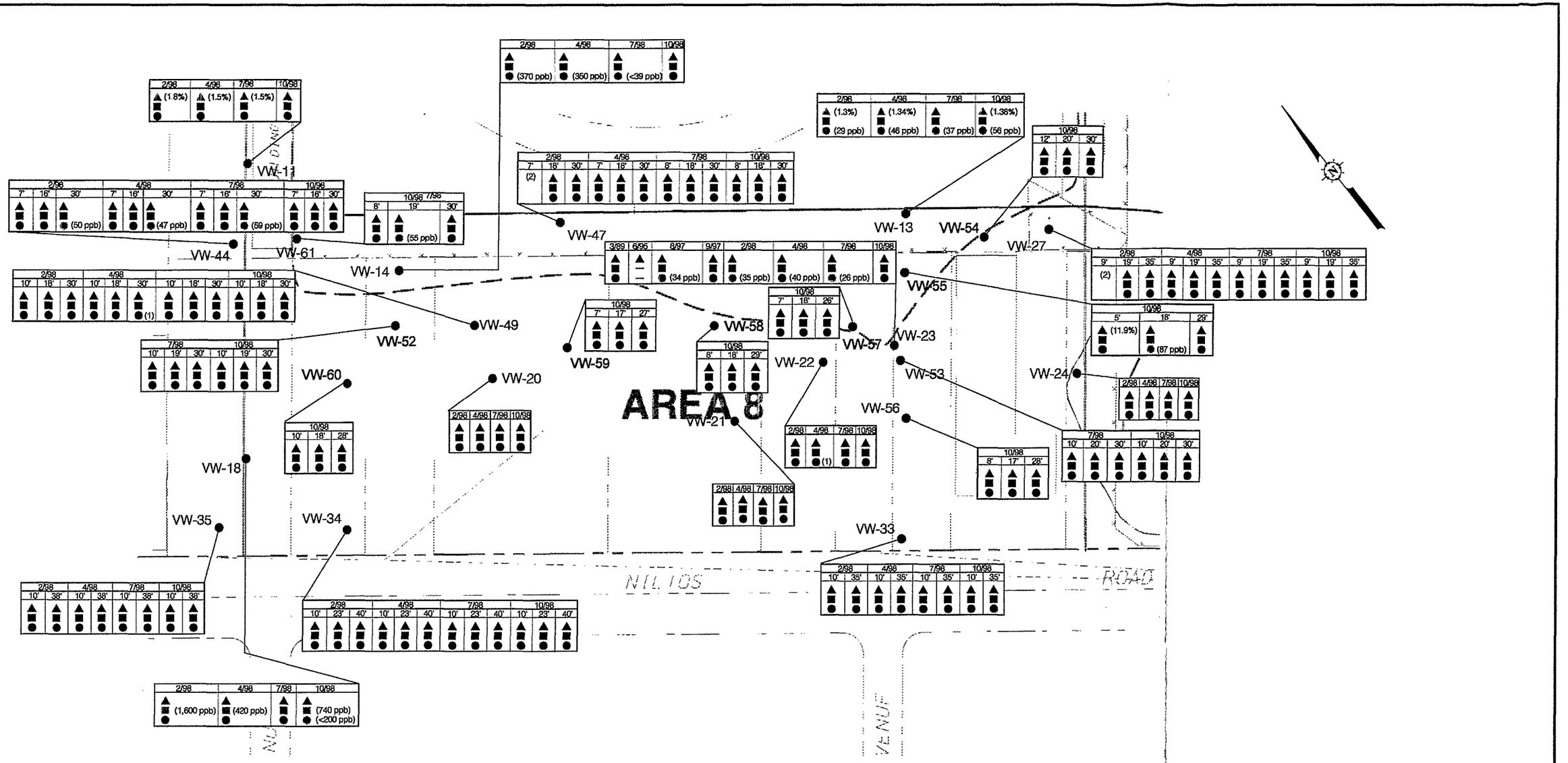
SUMMARY OF VAPOR WELL MONITORING RESULTS AREAS 6 & 7

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.23

94-256RDISR-28 REV. 03/31/99



LEGEND

SITE BOUNDARY	▲ METHANE	<1.25%	>1.25% to 5%	>5%
AREA BOUNDARY	■ BENZENE	<200 ppb	>200 ppb to 10,000 ppb	>10,000 ppb
SUMP-LIKE DELINEATION	● VINYL CHLORIDE	<25 ppb	>25 ppb to 5,000 ppb	>5,000 ppb
RI/FS VAPOR WELLS				
VAPOR WELLS INSTALLED BY OTHERS				
– NOT TESTED				
(1) ELEVATED DETECTION LIMIT				
(2) NOT SAMPLED DUE TO HIGH LIQUID LEVELS				

NOTE:
1. DIFFERENTIATING CRITERIA IS BASED ON IWMB METHANE STANDARD AND EPA INTERIM ACTIVE LEVELS FOR BENZENE AND VINYL CHLORIDE.

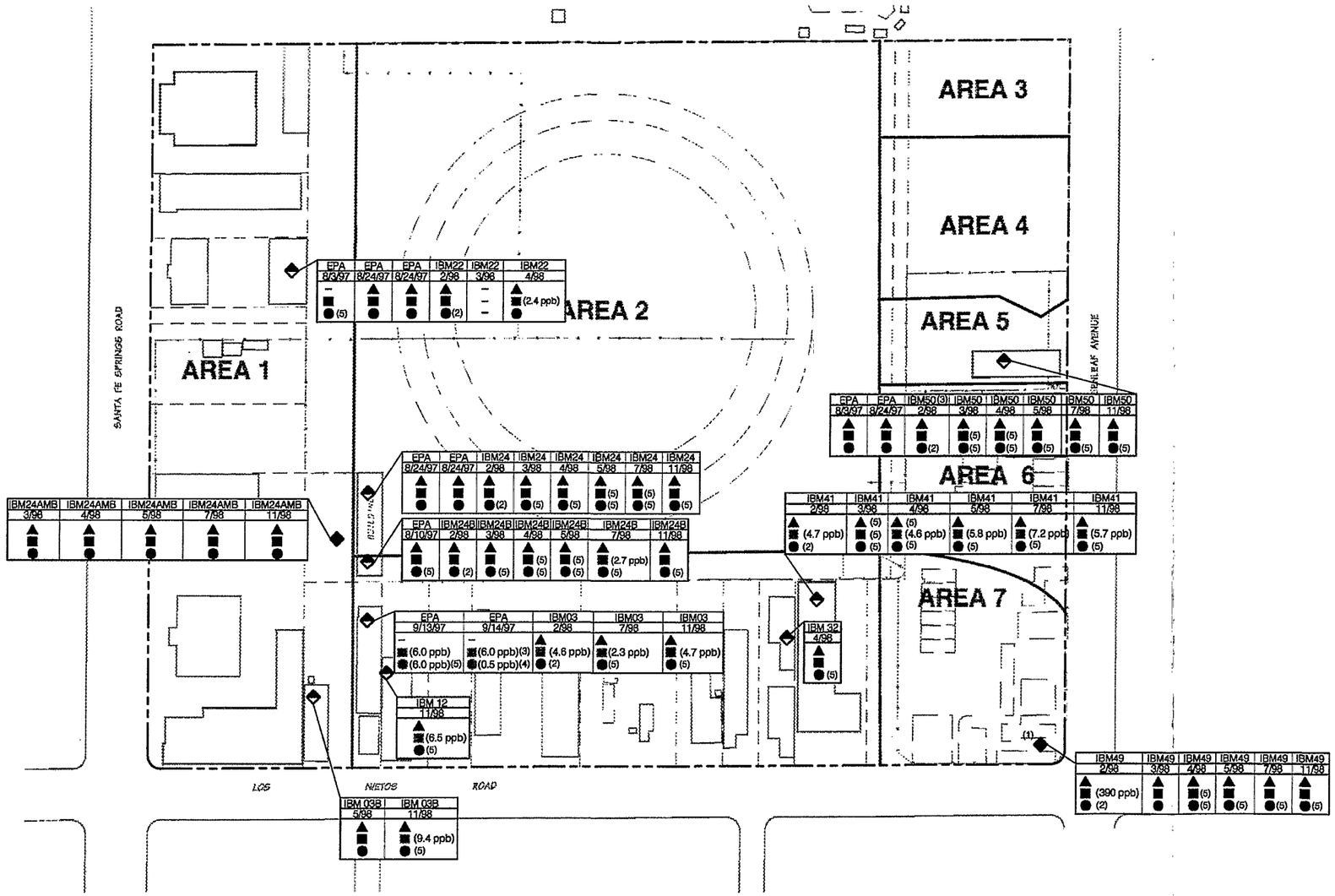
0 100 200 FEET
SCALE

SUMMARY OF VAPOR WELL MONITORING RESULTS AREA 8

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | **FIGURE 3.24**

94-256RDISR-29 REV. 03/31/99



LEGEND

▲	METHANE	<0.01%	.01 TO 1.25%	>1.25%
■	BENZENE	<2 ppb	2 TO 100 ppb	>100 ppb
●	VINYL CHLORIDE	<0.25 ppb	0.25 TO 50 ppb	>50 ppb

- SITE BOUNDARY
- AREA BOUNDARY
- IBM03 — SAMPLE IDENTIFIER
- IN-BUSINESS AIR MONITORING LOCATION
- AMBIENT AIR MONITORING STATION
- (1) BACKGROUND SAMPLE
- (2) REPORTING LIMIT 2 ppb
- (3) ESTIMATED VALUE
- (4) ESTIMATED VALUE - LOW BIAS FROM SURROGATE
- (5) EPA DATA VALIDATION QUALIFIED AS NON-DETECT
- – NOT ANALYZED

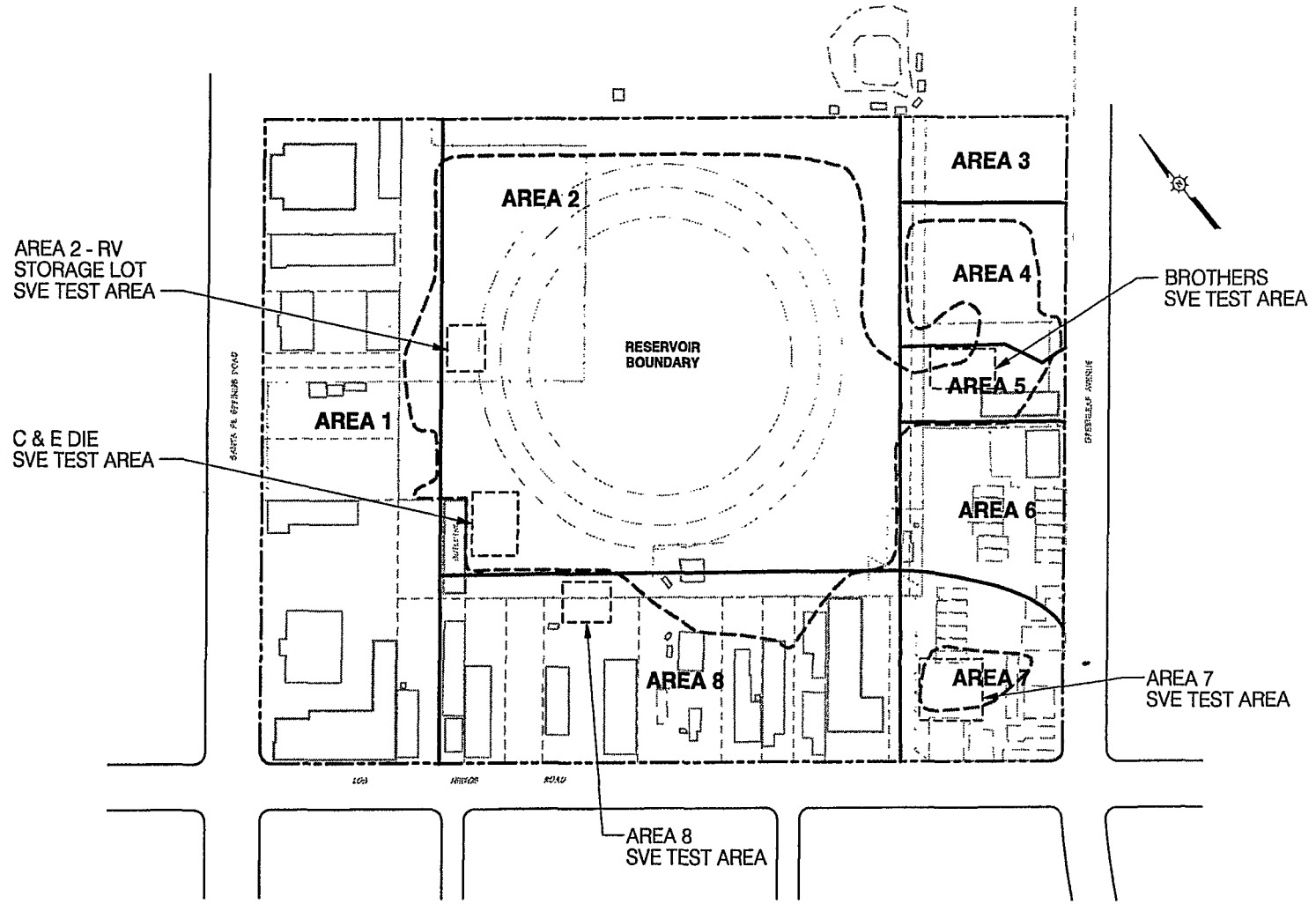
NOTES:
1. ONLY WDIG IN-BUSINESS AIR MONITORING LOCATIONS SHOWN.
2. DIFFERENTIATING CRITERIA IS BASED ON IWMB METHANE STANDARD AND EPA ITSL'S FOR BENZENE AND VINYL CHLORIDE.

0 200 400 FEET
SCALE

IN-BUSINESS AIR MONITORING LOCATIONS AND ANALYTICAL RESULTS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | **FIGURE 3.25**



LEGEND

- SITE BOUNDARY
- SITE AREA BOUNDARY
- FENCE
- EXISTING BUILDING/STRUCTURE
- PROPERTY BOUNDARY
- SVE TEST AREA
- SUMP-LIKE MATERIAL DELINIATION

0 300 600 FEET

SCALE

SVE TEST AREAS

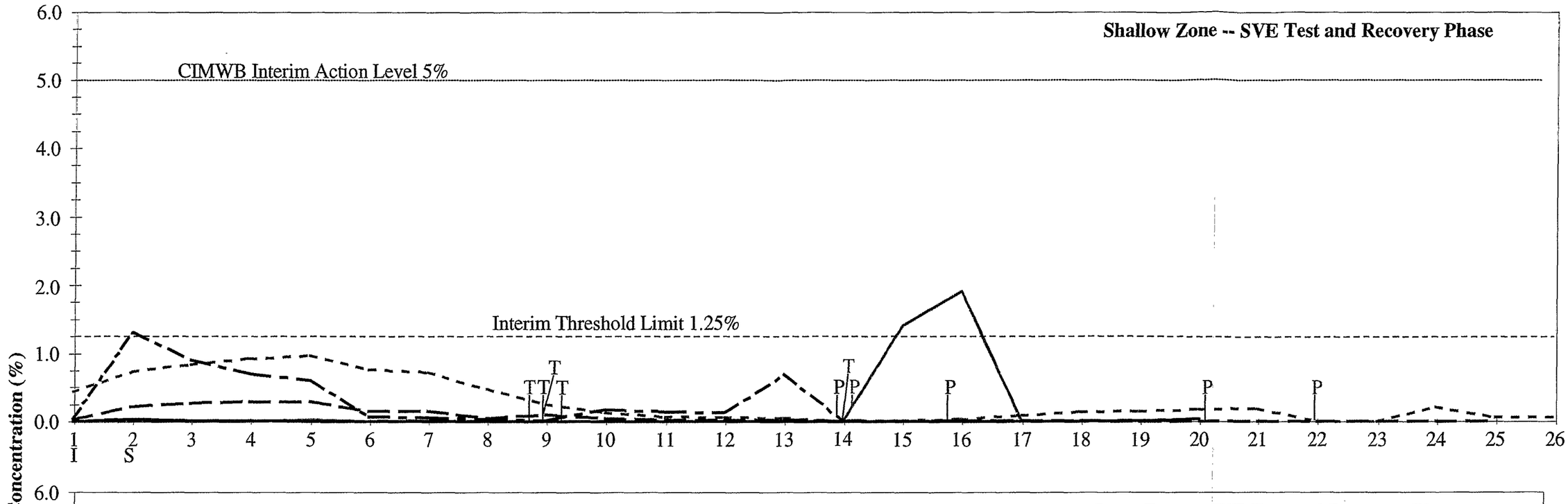
WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

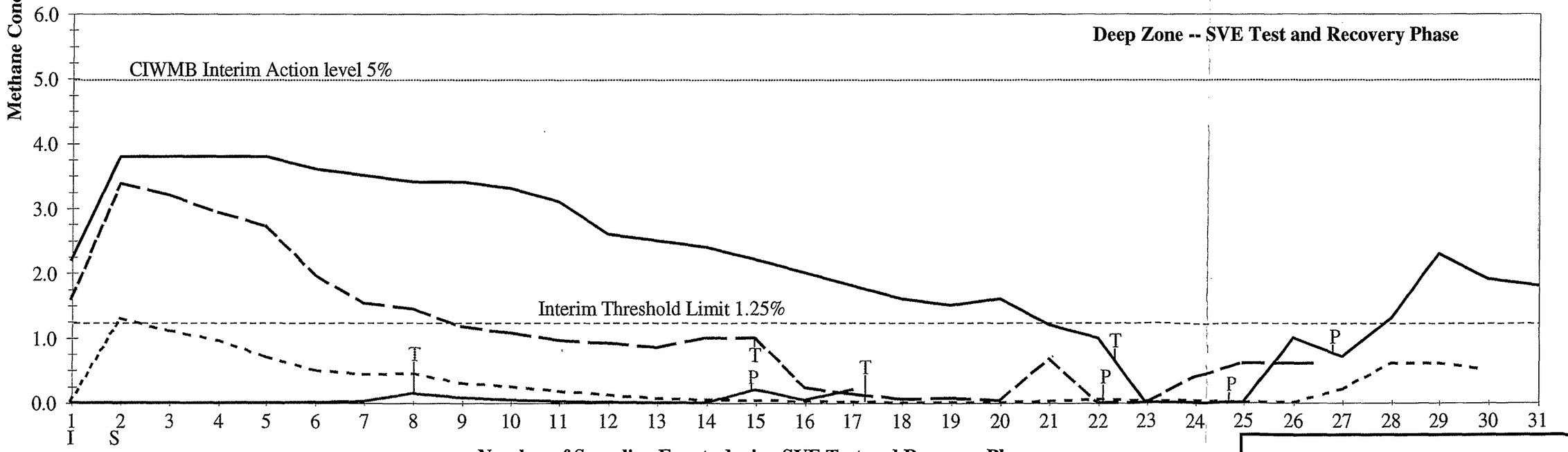
FIGURE 3.26

94-256RDISR-37 REV.04/14/99

Shallow Zone -- SVE Test and Recovery Phase



Deep Zone -- SVE Test and Recovery Phase



SVE TEST LOCATIONS

- Area 7
- C&E
- Area 8
- RV
- Brothers

Number of Sampling Events during SVE Test and Recovery Phase

I = Initial Sample
S = SVE Start Up
T = SVE Terminated
P = Purging Initiated

NOTE: Number of Samples corresponds to the sampling intervals as indicated in tables referred to in Section 3.0 of TM 9A ROF.

SVE TEST AND RECOVERY PHASE METHANE CONCENTRATIONS

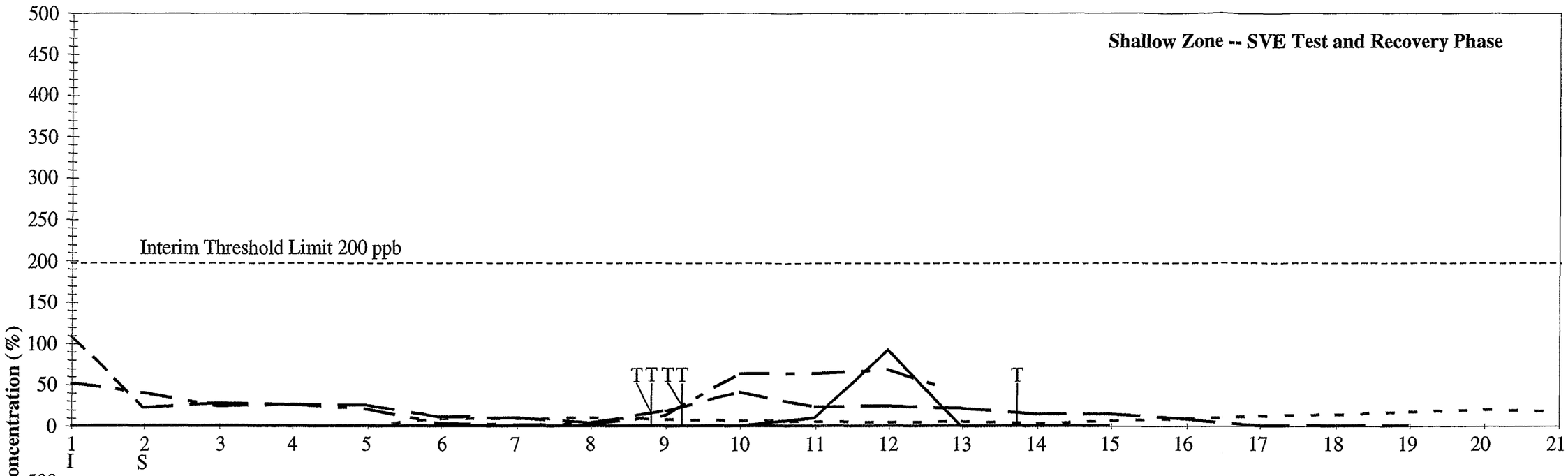
WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

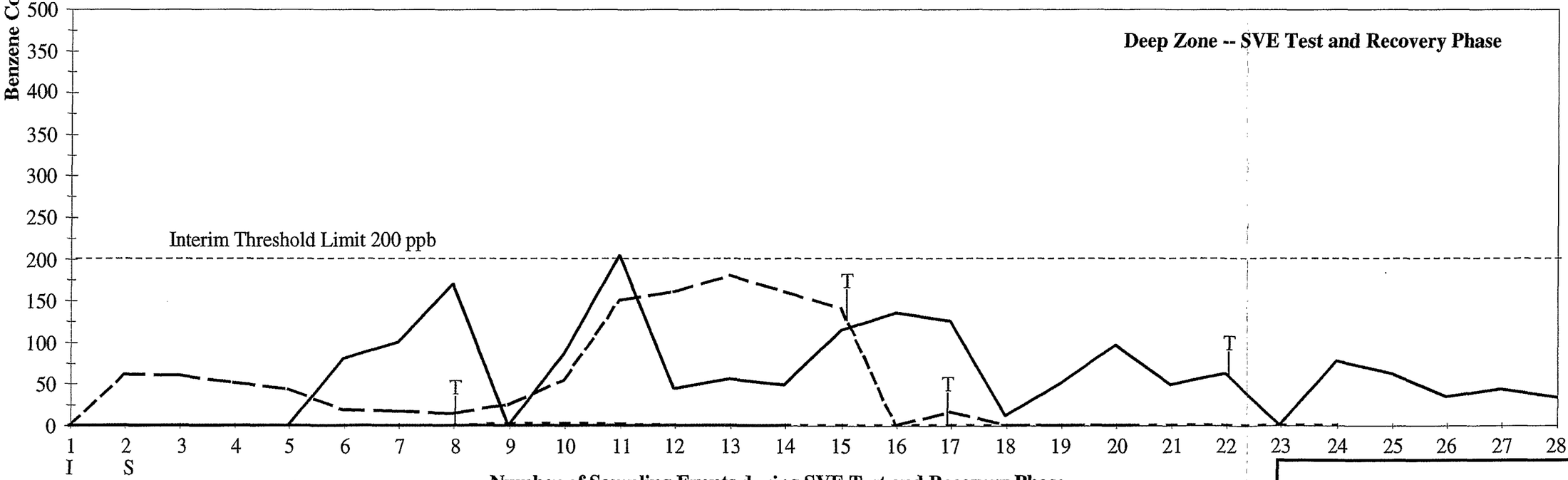
FIGURE 3.27

94-256RDISR-39 REV.04/14/99

Shallow Zone -- SVE Test and Recovery Phase



Deep Zone -- SVE Test and Recovery Phase



SVE TEST LOCATIONS

- - - - Area 7
— — C&E
——— Area 8
— - - RV
——— Brothers

Number of Sampling Events during SVE Test and Recovery Phase

I = Initial Sample
S = SVE Start Up
T = SVE Terminated
P = Purging Initiated

NOTE: Number of Samples corresponds to the sampling intervals as indicated in tables referred to in Section 3.0 of TM 9A ROF.

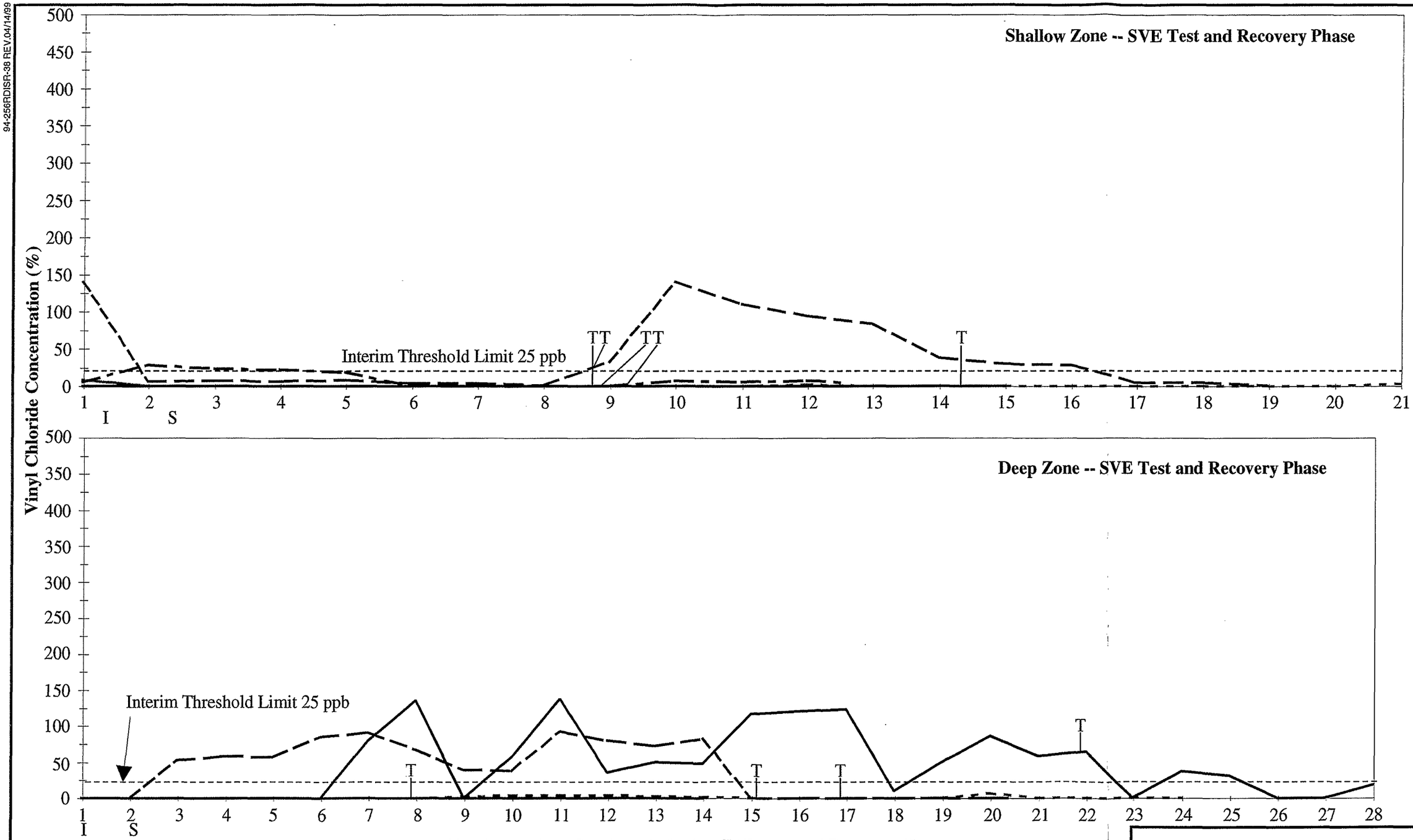
SVE TEST AND RECOVERY PHASE BENZENE CONCENTRATIONS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.28

94-256RDISR-38 REV.04/14/99



SVE TEST LOCATIONS

- - - Area 7
— — C&E
——— Area 8
— - RV
——— Brothers

Number of Sampling Events during SVE Test and Recovery Phase

I = Initial Sample
S = SVE Start Up
T = SVE Terminated
P = Purging Initiated

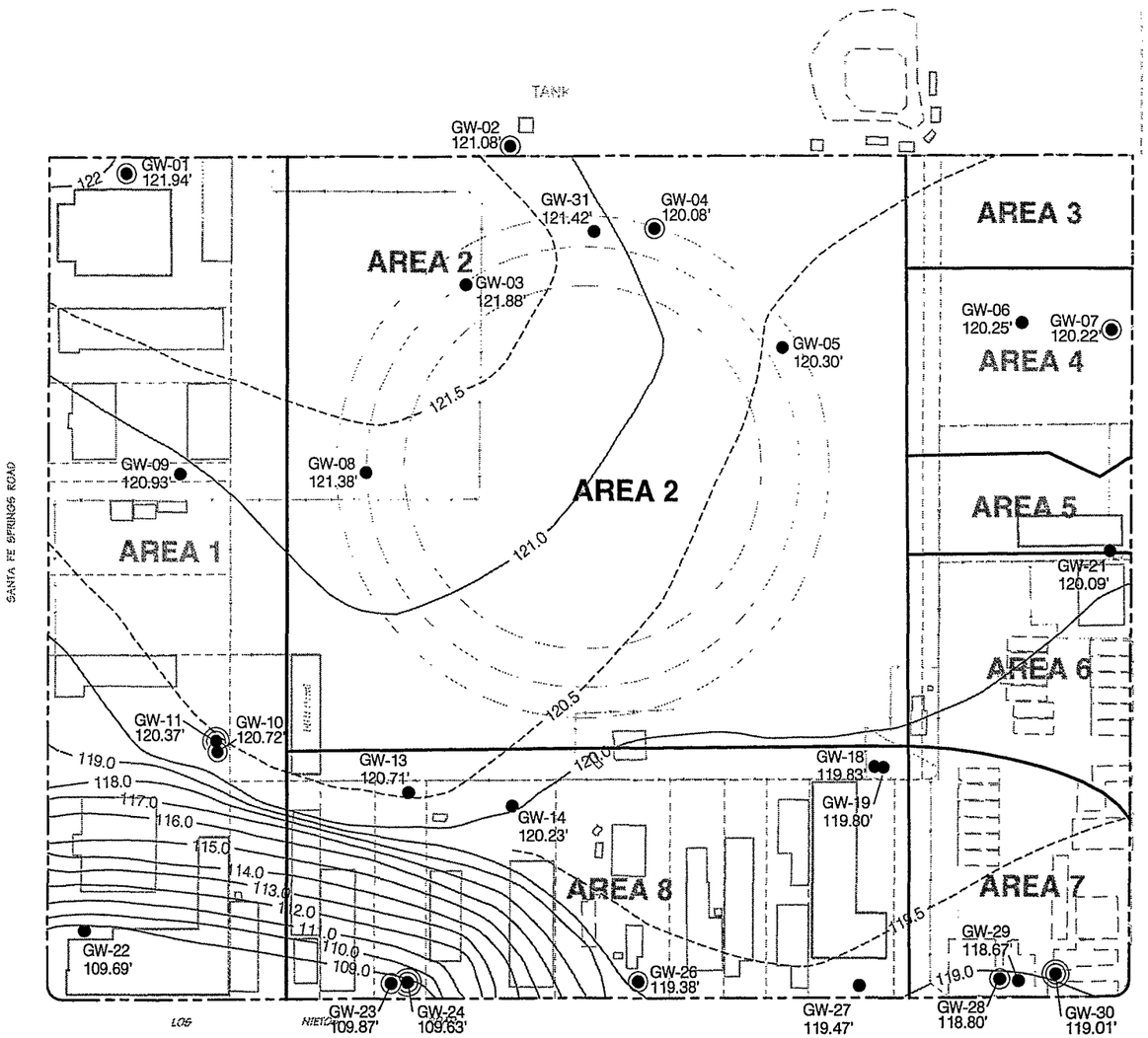
NOTE: Number of Samples corresponds to the sampling intervals as indicated in tables referred to in Section 3.0 of TM 9A ROF.

SVE TEST AND RECOVERY PHASE VINYL CHLORIDE CONCENTRATIONS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | FIGURE 3.29

94-256RDISR-43 REV.04/05/99



LEGEND

GW-08 121.38'	GROUND WATER MONITORING WELL AND GROUND WATER ELEVATION
GW-01	SHALLOW GROUND WATER MONITORING WELL
GW-11	*DEEP GROUND WATER MONITORING WELL*
	SITE BOUNDARY
	AREA BOUNDARY
	FENCE
	EXISTING BUILDING
119.0	GROUND WATER ELEVATION CONTOUR (JUNE 1998) (FEET ABOVE MSL)

NOTE: TYPICAL GROUND WATER CONTOURS FOR GROUND WATER MONITORING PERFORMED AT THE SITE FROM SEPTEMBER 1997 THROUGH OCTOBER 1998.

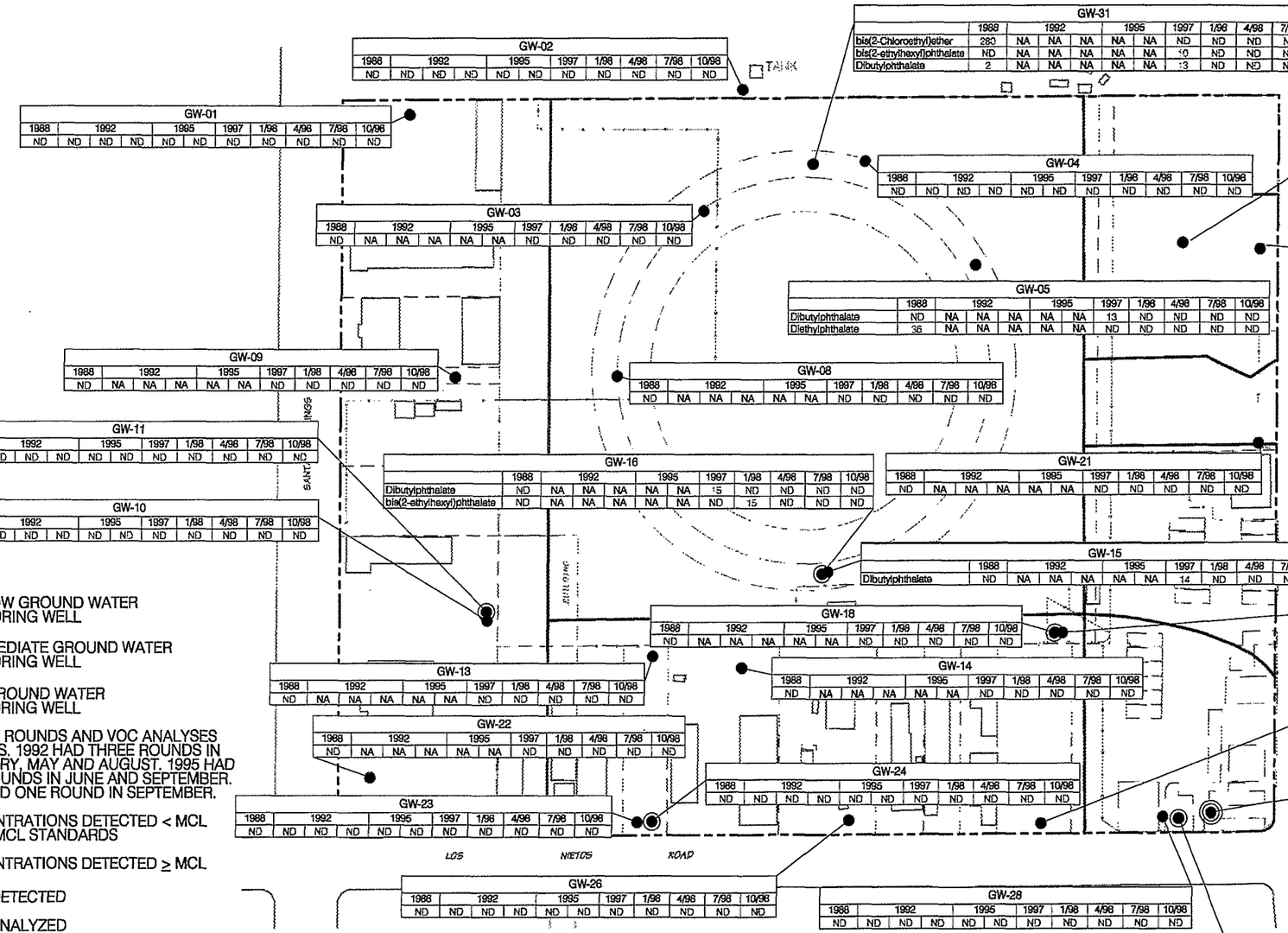
0 200 400 FEET
SCALE

GROUND WATER SITE CONTOUR MAP JUNE 1998

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | **FIGURE 3.30**

94-256RDISR-33 REV. 04/05/99



LEGEND

- ● GW-01 SHALLOW GROUND WATER MONITORING WELL
- ◉ GW-16 INTERMEDIATE GROUND WATER MONITORING WELL
- ◉ GW-30 DEEP GROUND WATER MONITORING WELL

11/88 1992 ND 2J/ND/ND — SAMPLE ROUNDS AND VOC ANALYSES RESULTS. 1992 HAD THREE ROUNDS IN FEBRUARY, MAY AND AUGUST. 1995 HAD TWO ROUNDS IN JUNE AND SEPTEMBER. 1997 HAD ONE ROUND IN SEPTEMBER.

15 — CONCENTRATIONS DETECTED < MCL OR NO MCL STANDARDS

15 — CONCENTRATIONS DETECTED ≥ MCL

ND = NOT DETECTED

NA = NOT ANALYZED

NOTES

1. ACCORDING TO THE 1992 FINAL GROUND WATER CHARACTERIZATION REPORT (EBASCO, 1989) ALL THREE PHTHALATES ARE COMMON LAB CONTAMINANTS.
2. ACCORDING TO THE 1992 GROUND WATER MONITORING REPORT (EPA, 1993) SEVERAL PHTHALATES, INCLUDING Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate, AND Butylbenzene-phthalate WERE FOUND AT LOW LEVELS IN THE BLANKS AND SAMPLES. THE REPORT ALSO STATES THAT THESE PHTHALATES ARE COMMON LABORATORY CONTAMINANTS AND ARE PROBABLY ARTIFACTS.

REFERENCE: BASED ON FIGURE 2.3, FINAL REMEDIAL INVESTIGATION REPORT, EBASCO, 1989d AND FIGURE 2.7, EPA 1992 GROUND WATER MONITORING REPORT.

EXISTING GROUND WATER MONITORING WELL LOCATIONS AND SVOC ANALYSES RESULTS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.31

94-256RDISR-34 REV. 04/05/99

GW-01	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	48400	ND	ND	ND	ND	ND	24.0	ND	0.068	ND	0.10
Arsenic	25	ND	ND	ND	ND	57	0.018	ND	ND	ND	ND
Chromium	91.3	ND	7.4	4.5	ND	ND	0.540	ND	ND	ND	ND
Selenium	80.1	33.2	46.4	67.7	12	71	0.072	0.019	0.035	0.023	0.029

GW-02	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	3570	ND	ND	ND	ND	ND	ND	ND	0.052	0.2	ND
Selenium	20.4	14.1	50.5	37.2	9.3	28	0.023	0.018	0.025	0.036	0.037

GW-31	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	1800	NA	NA	NA	NA	NA	0.17	ND	0.11	ND	0.11
Selenium	24	NA	NA	NA	NA	NA	0.026	0.014	0.020	0.036	0.041

GW-04	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	0.10	ND	0.13
Arsenic	NA	ND	ND	ND	ND	56	0.028	ND	ND	ND	ND
Lead	NA	ND	2.2	ND	ND	63	ND	0.0058	ND	ND	0.0050
Selenium	47.5	16.1	21.9	17	37	9.2	0.023	0.019	0.039	0.038	0.040

GW-06	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	3090	NA	NA	NA	NA	NA	1.9	ND	ND	ND	0.072
Selenium	32	NA	NA	NA	NA	NA	0.016	0.018	0.027	0.024	0.031

GW-07	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	1600	ND	ND	ND	ND	ND	0.033	ND	ND	ND	0.082
Selenium	26	19.1	21.4	30.9	24	30	0.027	0.023	0.024	0.034	0.045

GW-03	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	2640	NA	NA	NA	NA	NA	9.4	ND	ND	ND	ND
Selenium	20	NA	NA	NA	NA	NA	0.013	0.019	0.046	0.032	0.034

GW-05	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	1720	NA	NA	NA	NA	NA	ND	ND	0.071	0.12	0.11
Selenium	30.3	NA	NA	NA	NA	NA	0.014	0.0074	0.014	0.017	0.021
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	0.0066	0.0081	0.0077

GW-09	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	15200	NA	NA	NA	NA	NA	NA	ND	ND	0.086	0.13
Selenium	62.8	NA	NA	NA	NA	NA	NA	0.019	0.024	0.033	0.037

GW-08	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	1090	NA	NA	NA	NA	NA	0.0068	ND	0.072	ND	ND
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	0.030	0.021	0.017

GW-11	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	2350	ND	ND	ND	ND	ND	12.0	ND	ND	0.095	0.12
Selenium	86.6	37.8	47.6	89.7	4.3	39	0.013	0.023	0.040	0.04	0.046

GW-16	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Selenium	47	NA	NA	NA	NA	NA	0.037	0.023	0.058	0.054	0.064

GW-14	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	1250	NA	NA	NA	NA	NA	0.072	ND	ND	0.14	0.12
Selenium	17.9	NA	NA	NA	NA	NA	ND	ND	0.011	0.023	0.034

GW-21	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	2600	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
Selenium	42.8	NA	NA	NA	NA	NA	0.012	0.014	0.016	0.019	0.011

GW-10	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	8040	ND	ND	ND	ND	ND	0.019	ND	ND	ND	0.13
Selenium	24	11.9	46	52.9	ND	ND	0.0046	0.0084	0.011	0.013	0.020

GW-15	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	10900	NA	NA	NA	NA	NA	0.44	ND	ND	0.056	0.11
Selenium	27	NA	NA	NA	NA	NA	0.031	0.024	0.06	0.048	0.052

GW-19	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	2890	NA	NA	NA	NA	NA	ND	ND	ND	ND	0.079
Selenium	33	NA	NA	NA	NA	NA	0.002	0.017	0.031	0.031	0.04

GW-13	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	1380	NA	NA	NA	NA	NA	ND	ND	ND	0.088	0.11
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	0.015	0.011	0.017

GW-18	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	0.081	ND	ND
Selenium	37.5	NA	NA	NA	NA	NA	0.025	0.026	0.053	0.047	0.047

GW-22	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	9930	NA	NA	NA	NA	NA	0.023	ND	0.059	0.087	0.16
Mercury	2	NA	NA	NA	NA	NA	0.0023	0.0017	ND	0.0015	0.0017
Selenium	13	NA	NA	NA	NA	NA	ND	ND	0.0099	0.0064	0.016

GW-27	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	9650	NA	NA	NA	NA	NA	0.01	ND	0.057	0.091	0.15
Chromium	53	NA	NA	NA	NA	NA	0.027	ND	ND	ND	ND
Selenium	29	NA	NA	NA	NA	NA	0.012	0.022	0.027	0.037	0.051

GW-23	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	14800	ND	ND	ND	ND	ND	0.035	ND	0.052	0.11	0.12
Selenium	44.7	27	21.6	13	27	27	0.012	0.016	0.029	0.035	0.038

GW-30	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	11500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	29.9	21.8	30.3	31.4	19		0.023	0.021	0.027	0.028	0.029

GW-24	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	0.063	0.11	0.089
Selenium	20.5	27.4	53.7	87.1	49	60	0.024	0.029	0.042	0.052	0.050

GW-28	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	22600	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	44.2	20.6	28	42.5	18	5.9	0.022	0.026	0.038	0.038	0.036

GW-26	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	8860	ND	ND	ND	ND	ND	0.045	ND	ND	0.094	0.13
Arsenic	5	ND	ND	ND	ND	51	0.045	ND	ND	ND	ND
Selenium	19	26.5	11.9	52.8	28	7.8	0.019	0.021	0.044	0.047	0.052

GW-29	1988	1992			1995		1997	1/98	4/98	7/98	10/98
Aluminum	1030	NA	NA	NA	NA	NA	2.5	ND	ND	ND	0.076
Selenium	42.5	NA	NA	NA	NA	NA	0.022	0.020	0.042	0.038	0.043

SANTA FE SPRINGS ROAD

GREENLEAF AVENUE

LOS NIETOS ROAD

AREA 1

AREA 2

AREA 4

AREA 5

AREA 6

APPROXIMATE RESERVOIR BOUNDARY

OL PARKING

LEGEND

- ● GW-01 SHALLOW GROUND WATER MONITORING WELL
- ◉ GW-16 INTERMEDIATE GROUND WATER MONITORING WELL
- ◉ GW-30 DEEP GROUND WATER MONITORING WELL

11/88 1992 1995
ND 2J/ND/ND ND/ND SAMPLE ROUNDS AND METALS ANALYSES RESULTS. 1992 HAD THREE ROUNDS IN FEBRUARY, MAY AND AUGUST. 1995 HAD TWO ROUNDS IN JUNE AND SEPTEMBER. 1997 HAD ONE ROUND IN SEPTEMBER.

15 CONCENTRATIONS DETECTED < MCL OR NO MCL STANDARDS

15 CONCENTRATIONS DETECTED ≥ MCL

ND = NOT DETECTED

NA = NOT ANALYZED

NOTES

1. THE NOVEMBER 1988 MONITORING RESULTS ARE REPORTED AS TOTAL METALS. THE 1992 AND 1995 MONITORING RESULTS ARE REPORTED AS DISSOLVED METALS.

REFERENCE: BASED ON FIGURE 2.3, FINAL REMEDIAL INVESTIGATION REPORT, EBASCO, 1989d AND FIGURE 2.7, EPA 1992 GROUND WATER MONITORING REPORT.

0 200 400 FEET
SCALE

EXISTING GROUND WATER MONITORING WELL LOCATIONS AND METALS ANALYSES RESULTS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.32

94-256RDISR-35 REV. 04/05/99

GW-02

	1988	1992		1995		1997	1/98	4/98	7/98	10/98
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	[illegible]	ND	ND	ND	ND

GW-31

	1988	1992			1995			1997	1/98	4/98	7/98	10/98
Toluene	2J	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND

TANK

GW-01

	1988	1992			1995		1997	1/98	4/98	7/98	10/98
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	6.5	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	1.3	ND	–	ND	ND
PCE	ND	ND	ND	ND	10	11	6.6	5.9	5.6	6	4.4
TCE	ND	ND	ND	ND	ND	ND	2.7	ND	ND	ND	ND

AREA 2

AREA 3

GW-04

1988	1992			1995		1997	1/98	4/98	7/98	10/98
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

GW-06

	1988	1992			1995			1997	1/98	4/98	7/98	10/98
Chloroform	3	NA	NA	NA	NA	NA	NA	1.1	1.5	ND	ND	ND
Toluene	3J	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND

GW-03

1988	1992			1995		1997	1/98	4/98	7/98	10/98
ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND

GW-07

	1988	1992			1995		1997	1/98	4/98	7/98	10/98
2-Butanone	ND	ND	ND	41N	ND	ND	NA	NA	ND	ND	ND
Carbon Disulfide	ND	ND	1J	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	8	ND	ND	ND	3.1	3	3.5	2.9	ND	4.1	3.5
Toluene	1J	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND

GW-05

1988	1992			1995		1997	1/98	4/98	7/98	10/98
ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND

GW-09

	1988	1992			1995			1997	1/98	4/98	7/98	10/98
PCE	ND	NA	NA	NA	NA	NA	NA	NA	4.7	6.5	ND	3.8

GW-08

	1988	1992			1995			1997	1/98	4/98	7/98	10/98
PCE	ND	NA	NA	NA	NA	NA	NA	1.7	2.0	2.1	ND	ND
Toluene	4J	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND

AREA 4

AREA 5

GW-11

	1988	1992			1995			1997	1/98	4/98	7/98	10/98
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	0.53	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	1J	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	–	ND	ND	ND	0.9	0.71	–	ND	ND
PCE	11	ND	8J	17N	ND	2.3	40	74	77	ND	91
TCE	ND	ND	ND	ND	ND	ND	4.8	6.9	7.5	ND	3.2

AREA 1

GW-21

	1988	1992			1995			1997	1/98	4/98	7/98	10/98
Chloroform	ND	NA	NA	NA	NA	NA	NA	0.55	ND	ND	ND	ND
PCE	1J	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND

GW-10

	1988	1992			1995		1997	1/98	4/98	7/98	10/98
PCE	ND	ND	ND	ND	ND	ND	1.2	1.2	ND	ND	ND
Toluene	3J	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND

GW-16

1988	1992			1995		1997	1/98	4/98	7/98	10/98
ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND

AREA 6

GW-15

	1988	1992			1995			1997	1/98	4/98	7/98	10/98
Toluene	3J	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
Other VOC's	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND

BUILDING

GW-18

1988	1992			1995		1997	1/98	4/98	7/98	10/98
ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND

GW-19

	1988	1992			1995			1997	1/98	4/98	7/98	10/98
Toluene	4J	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND

GW-13

	1988	1992			1995			1997	1/98	4/98	7/98	10/98
PCE	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	6.8	ND
TCE	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	2.4	ND

GW-14

1988	1992			1995		1997	1/98	4/98	7/98	10/98
ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND

AREA 7

AREA 8

GW-22

	1988	1992			1995		1997	1/98	4/98	7/98	10/98
cis-1,2-Dichloroethene	ND	NA	NA	NA	NA	NA	0.59	ND	–	ND	ND
PCE	ND	NA	NA	NA	NA	NA	4.3	5.9	5.1	4.3	2.5
TCE	ND	NA	NA	NA	NA	NA	3.3	ND	ND	2.3	2.7
Toluene	5	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND

GW-27

1988	1992			1995		1997	1/98	4/98	7/98	10/98
ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND

GW-30

	1988	1992			1995			1997	1/98	4/98	7/98	10/98
Acetone	1100J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ROAD

GW-23

	1988	1992			1995			1997	1/98	4/98	7/98	10/98
PCE	ND	ND	ND	ND	ND	ND	0.56	ND	ND	ND	ND	ND
TCE	ND	ND	ND	ND	ND	ND	0.55	ND	ND	ND	ND	ND

GW-28

1988	1992			1995		1997	1/98	4/98	7/98	10/98
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

GW-24

	1988	1992			1995		1997	1/98	4/98	7/98	10/98
PCE	ND	2J	ND	ND	ND	ND	13	30	38	35	22
TCE	ND	ND	ND	ND	ND	ND	1.3	ND	3.4	3.8	2.6

GW-29

1988	1992			1995		1997	1/98	4/98	7/98	10/98
ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND

GW-26

	1988	1992			1995		1997	1/98	4/98	7/98	10/98
TCE	18	8J	7J	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	4J	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND

ROMAINE AVENUE

FREEMAN AVENUE

NOTE

1. TOLUENE DURING THE NOVEMBER 1988 SAMPLING WAS QUALIFIED 'J'. IN THOSE WELLS THAT WERE SAMPLED AFTER 1989 TOLUENE WAS NOT DETECTED AGAIN. THEREFORE THIS COMPOUND WAS PROBABLY A FIELD OR LABORATORY ARTIFACT

LEGEND

- ● GW-01 SHALLOW GROUND WATER MONITORING WELL
- ◉ GW-16 INTERMEDIATE GROUND WATER MONITORING WELL
- ◉ GW-30 DEEP GROUND WATER MONITORING WELL

1988 1992 1995 SAMPLE ROUNDS AND VOC ANALYSES
ND 2J/ND/ND ND/ND RESULTS. 1992 HAD THREE ROUNDS IN FEBRUARY, MAY AND AUGUST. 1995 HAD TWO ROUNDS IN JUNE AND SEPTEMBER. 1997 HAD ONE ROUND IN SEPTEMBER.

1 3 CONCENTRATIONS DETECTED < MCL OR NO MCL STANDARDS

13 CONCENTRATIONS DETECTED > MCL

– = NOT ANALYZED
ND = NOT DETECTED
NA = NOT APPLICABLE
PCE = TETRACHLOROETHENE
TCE = TRICHLOROETHENE

REFERENCE: BASED ON FIGURE 2.3, FINAL REMEDIAL INVESTIGATION REPORT, EBASCO, 1989d AND FIGURE 2.7, EPA 1992 GROUND WATER MONITORING REPORT.

0 200 400 FEET
SCALE

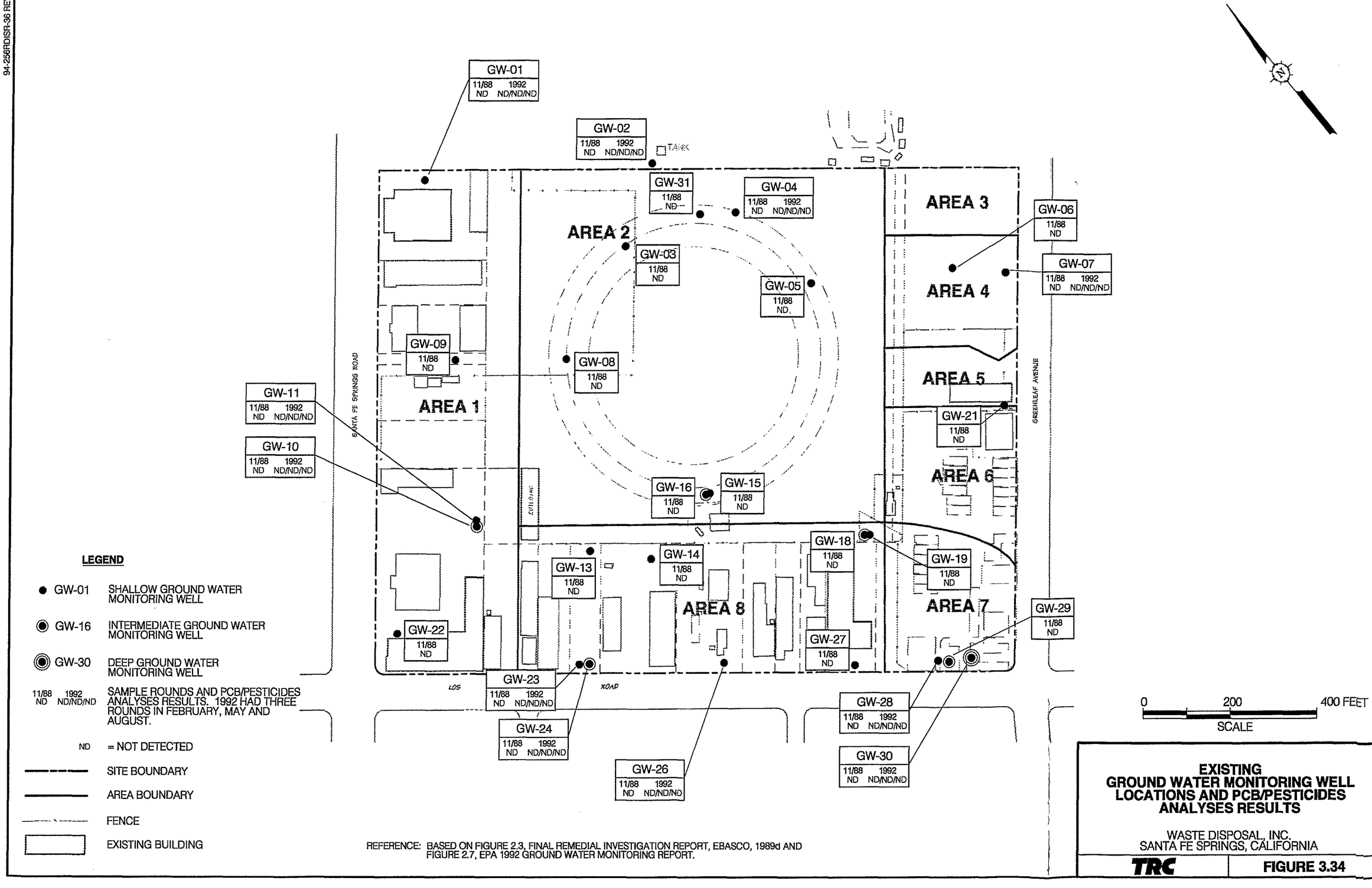
EXISTING GROUND WATER MONITORING WELL LOCATIONS AND VOC ANALYSES RESULTS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.33

94-256RDISR-36 REV. 04/05/99



LEGEND

- ● GW-01 — SHALLOW GROUND WATER MONITORING WELL
- ◉ GW-16 — INTERMEDIATE GROUND WATER MONITORING WELL
- ◉ GW-30 — DEEP GROUND WATER MONITORING WELL
- 11/88 ND 1992 ND/ND/ND — SAMPLE ROUNDS AND PCB/PESTICIDES ANALYSES RESULTS. 1992 HAD THREE ROUNDS IN FEBRUARY, MAY AND AUGUST.
- ND = NOT DETECTED
- SITE BOUNDARY
- AREA BOUNDARY
- FENCE
- EXISTING BUILDING

REFERENCE: BASED ON FIGURE 2.3, FINAL REMEDIAL INVESTIGATION REPORT, EBASCO, 1989d AND FIGURE 2.7, EPA 1992 GROUND WATER MONITORING REPORT.

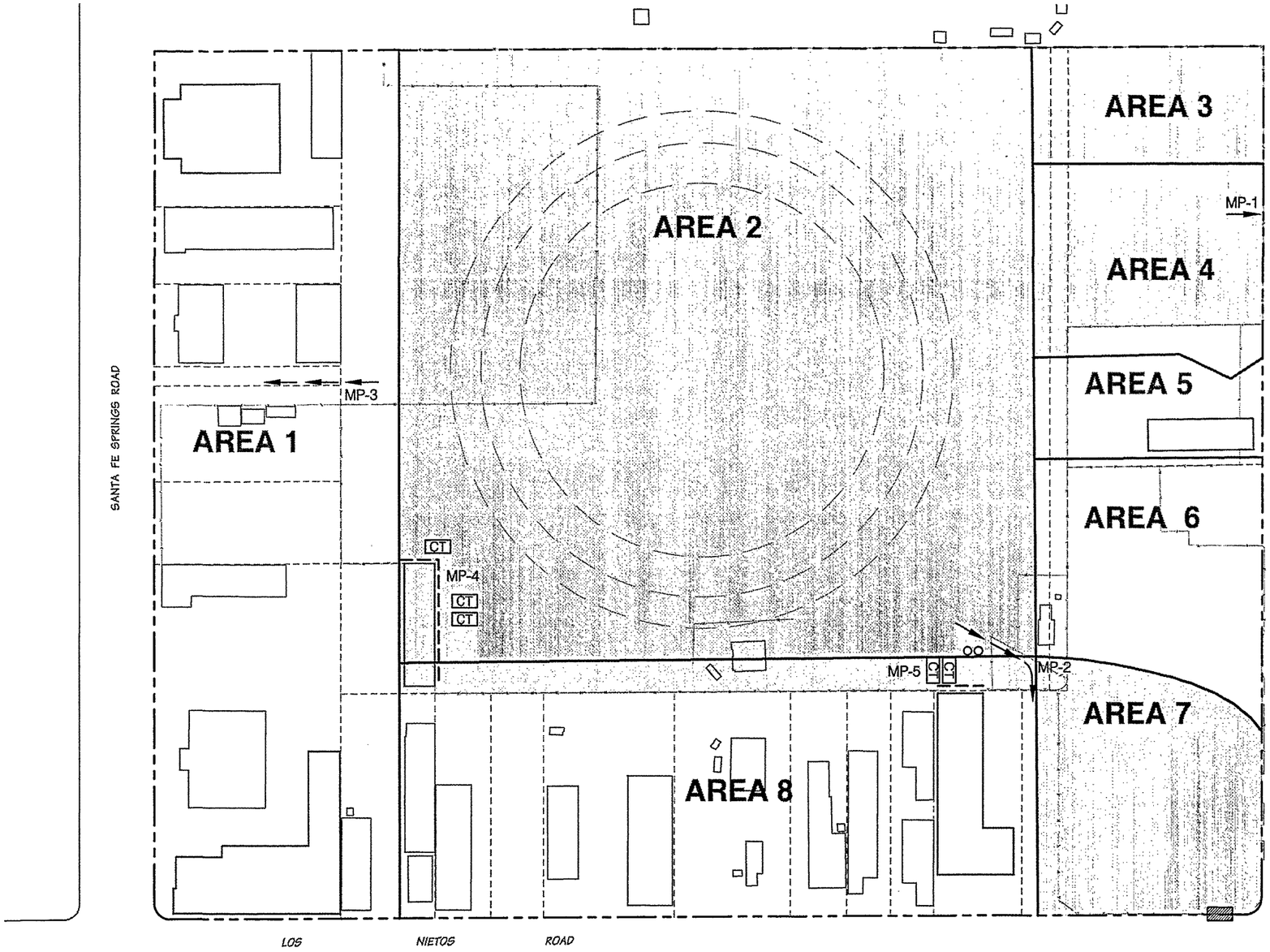
EXISTING GROUND WATER MONITORING WELL LOCATIONS AND PCB/PESTICIDES ANALYSES RESULTS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3.34

94-250/DISR-44 REV. 04/06/99



LEGEND

- SITE BOUNDARY
- AREA BOUNDARY
- STORMWATER COLLECTION SYSTEM
- SUBJECT AREA
- MP-1 — STORMWATER MONITORING POINT AND SURFACE FLOW DIRECTION
- CT — 20,000 GALLON STORMWATER COLLECTION TANK (CT)
- 6,000 GALLON BAKER TANK
- STORMWATER DISCHARGE POINT TO STORM DRAIN

NOTE:
1. MP-1, -2 AND -3 ARE AREAS AT THE SITE WHERE CONCENTRATED STORMWATER FLOW HAS BEEN IDENTIFIED.

0 160 320 FEET
SCALE

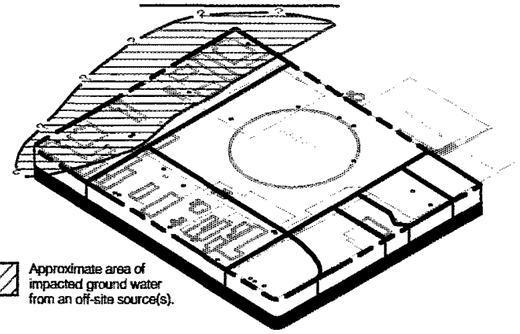
1998 SITE PLAN AND STORMWATER MONITORING POINTS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | **FIGURE 3.35**

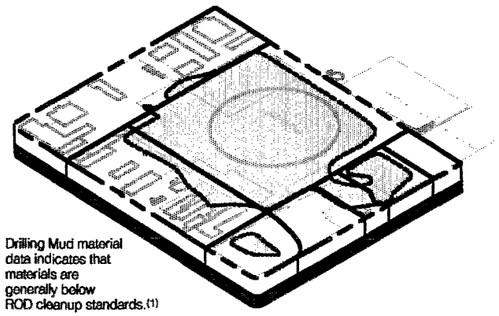
94-256RD/SR-40 REV. 04/16/98

GROUND WATER



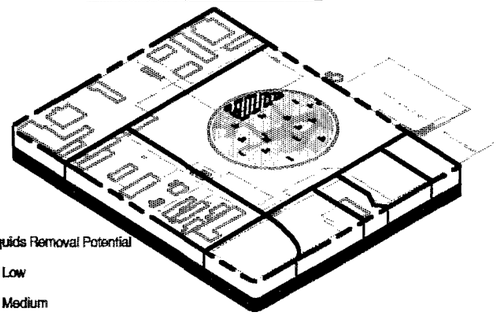
Approximate area of impacted ground water from an off-site source(s).

SOILS



Drilling Mud material data indicates that materials are generally below ROD cleanup standards.(1)

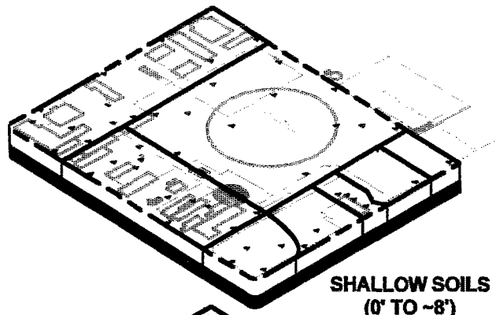
LIQUIDS/LEACHATE



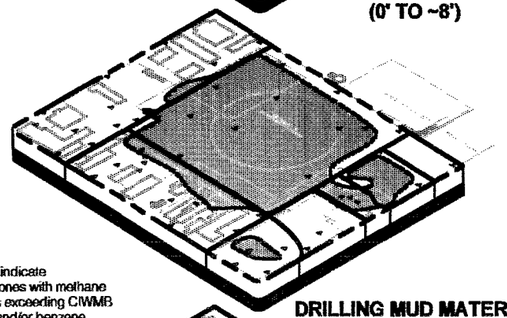
Liquids Removal Potential

- Low
- Medium
- High

SOIL GAS

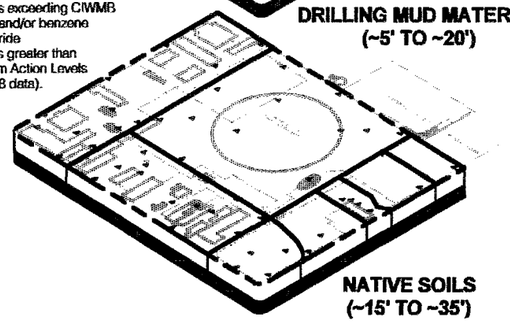


SHALLOW SOILS (0' TO ~8')



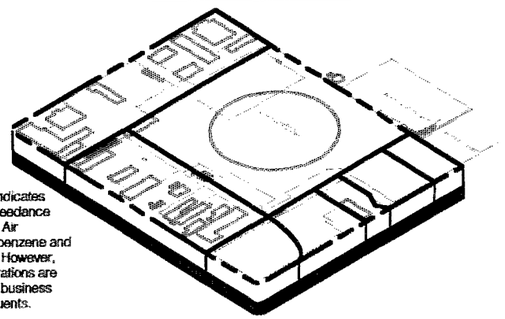
DRILLING MUD MATERIAL (~5' TO ~20')

Shaded areas indicate approximate zones with methane concentrations exceeding CIWMB requirements and/or benzene and vinyl chloride concentrations greater than the EPA Interim Action Levels (based on 4/98 data).



NATIVE SOILS (~15' TO ~35')

IN BUSINESS AIR



Shaded area indicates a potential exceedance of EPA In-door Air Standards for benzene and vinyl chloride. However, these concentrations are believed to be business related constituents.

LEGEND

- VAPOR WELL
- GROUND WATER WELL

NOTES

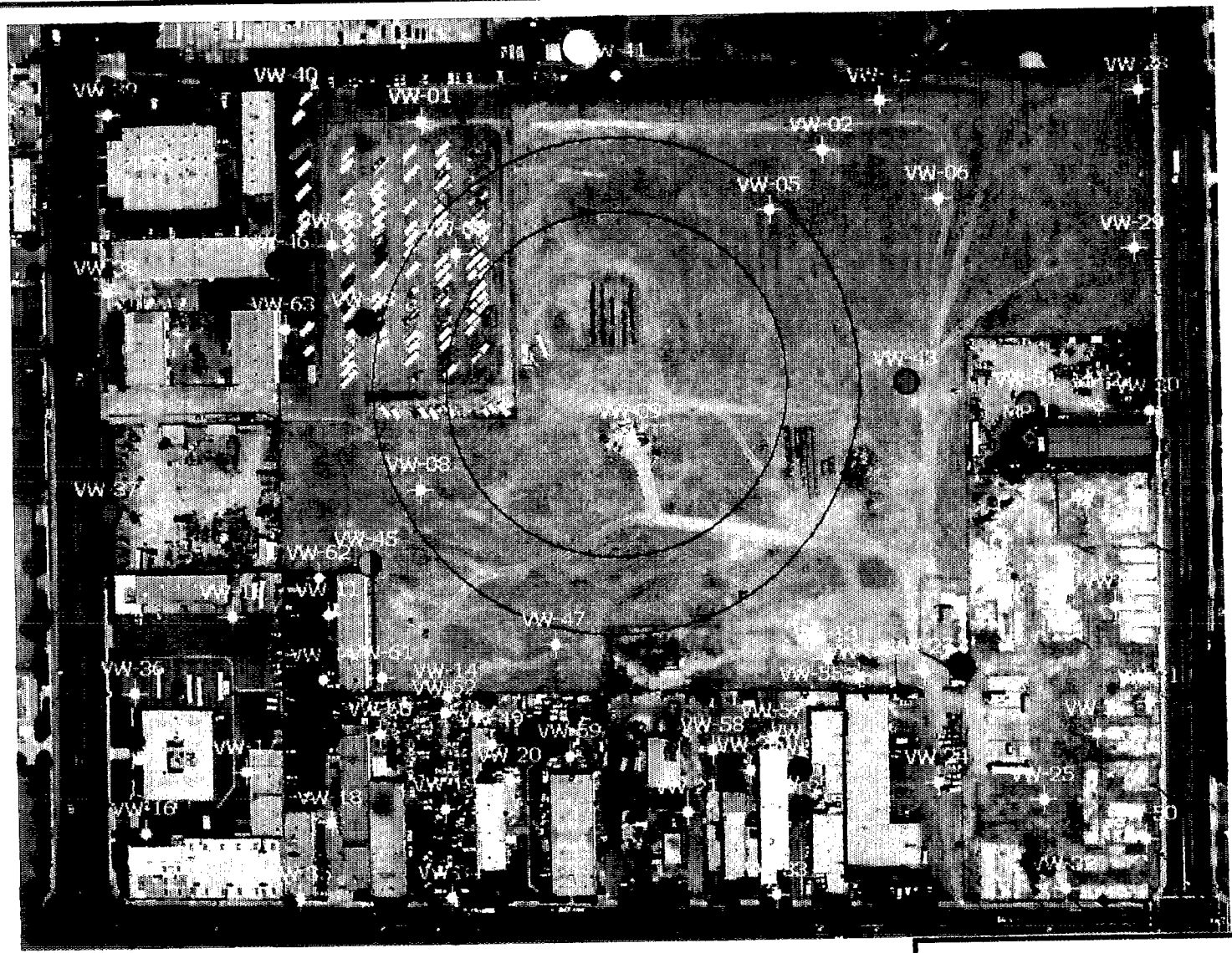
(1) Soil sampling indicated approximately 24 exceedances of the ROD cleanup standards for only the total metals constituents (i.e.: As, Be, Cr, Pb and Tl), out of 648 analyses performed on drilling mud samples.

(2) Recognition needs to be given to the hydraulic barrier nature of the concrete bowl structure within which the low permeable drilling mud material is contained.

SITE MEDIA CONDITIONS

WASTE DISPOSAL, INC.
SANTE FE SPRINGS, CALIFORNIA

TRC | **FIGURE 4.1**



LEGEND

- SHALLOW WELLS
- DEEP WELLS
- BOTH WELLS

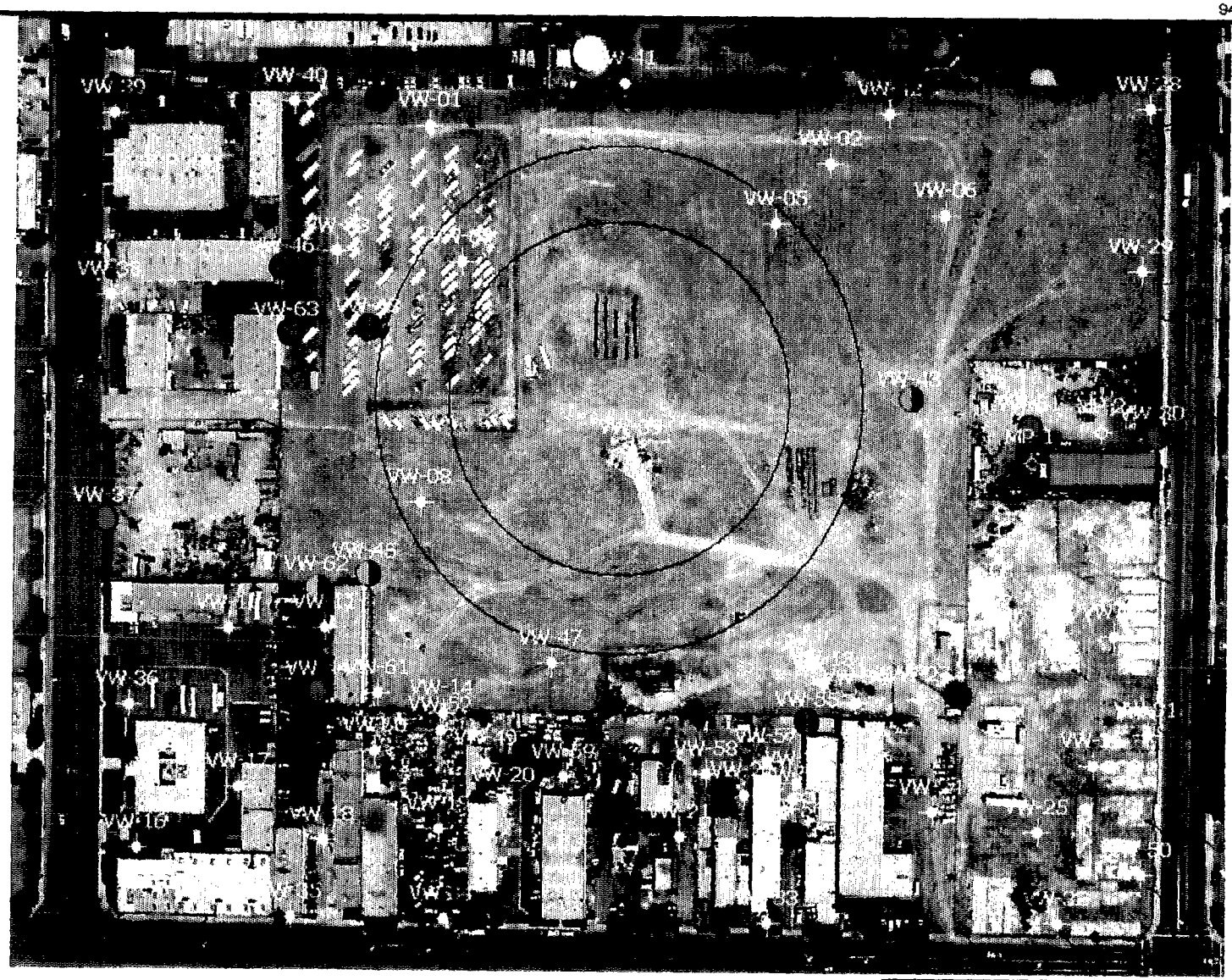
PROJECT NAVIGATOR, LTD.

EXCEEDANCES OF TCE CRITERIA (20ppb)

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 4.2



LEGEND

- SHALLOW WELLS
- DEEP WELLS
- BOTH WELLS

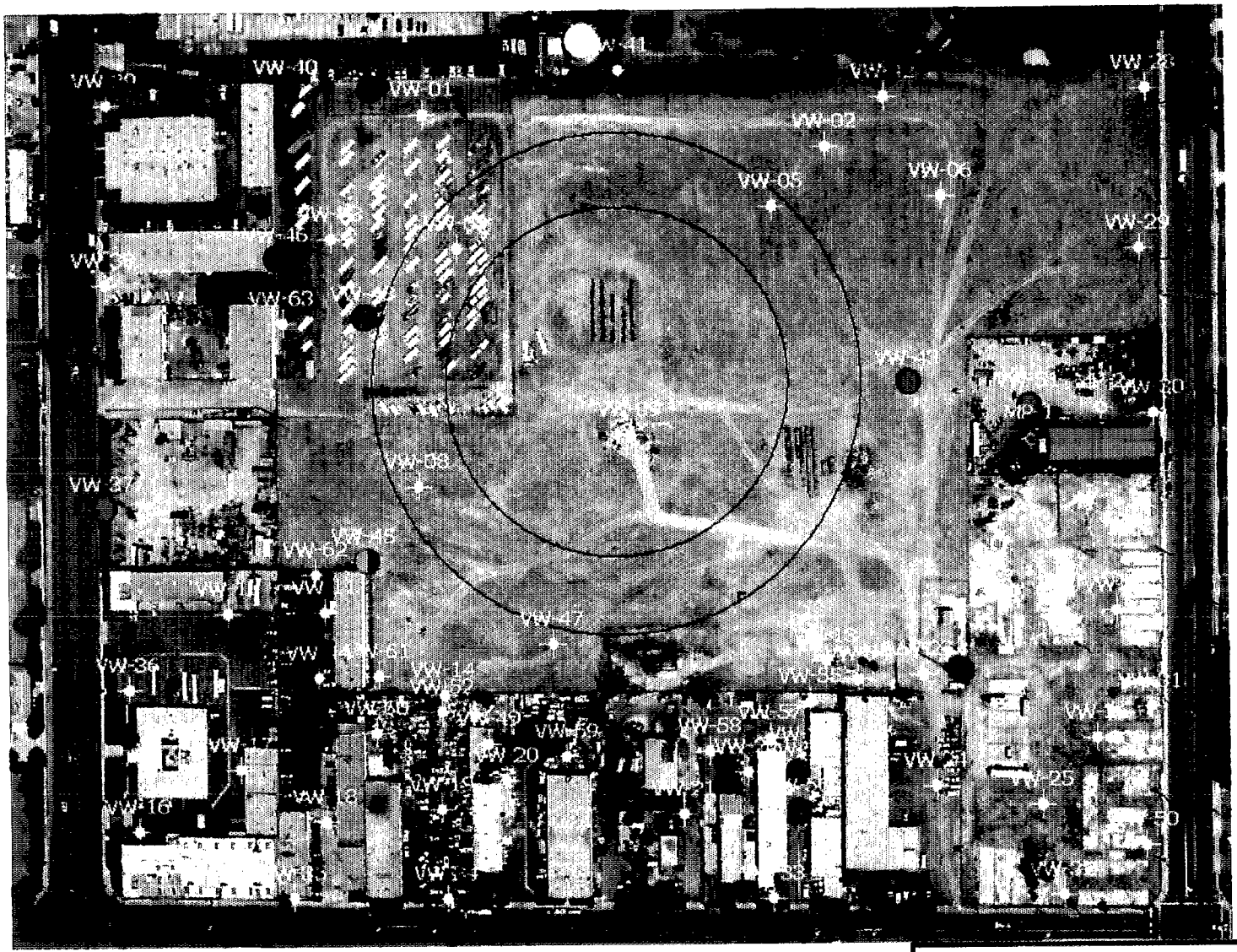
PROJECT NAVIGATOR, LTD.

EXCEEDANCES OF VINYL CHLORIDE CRITERIA (0.86ppb)

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 4.3



LEGEND

- SHALLOW WELLS
- DEEP WELLS
- BOTH WELLS

PROJECT NAVIGATOR, LTD.

EXCEEDANCES OF PCE CRITERIA (49 ppb)

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 4.4

LEGEND

- SHALLOW WELLS
- DEEP WELLS
- BOTH WELLS

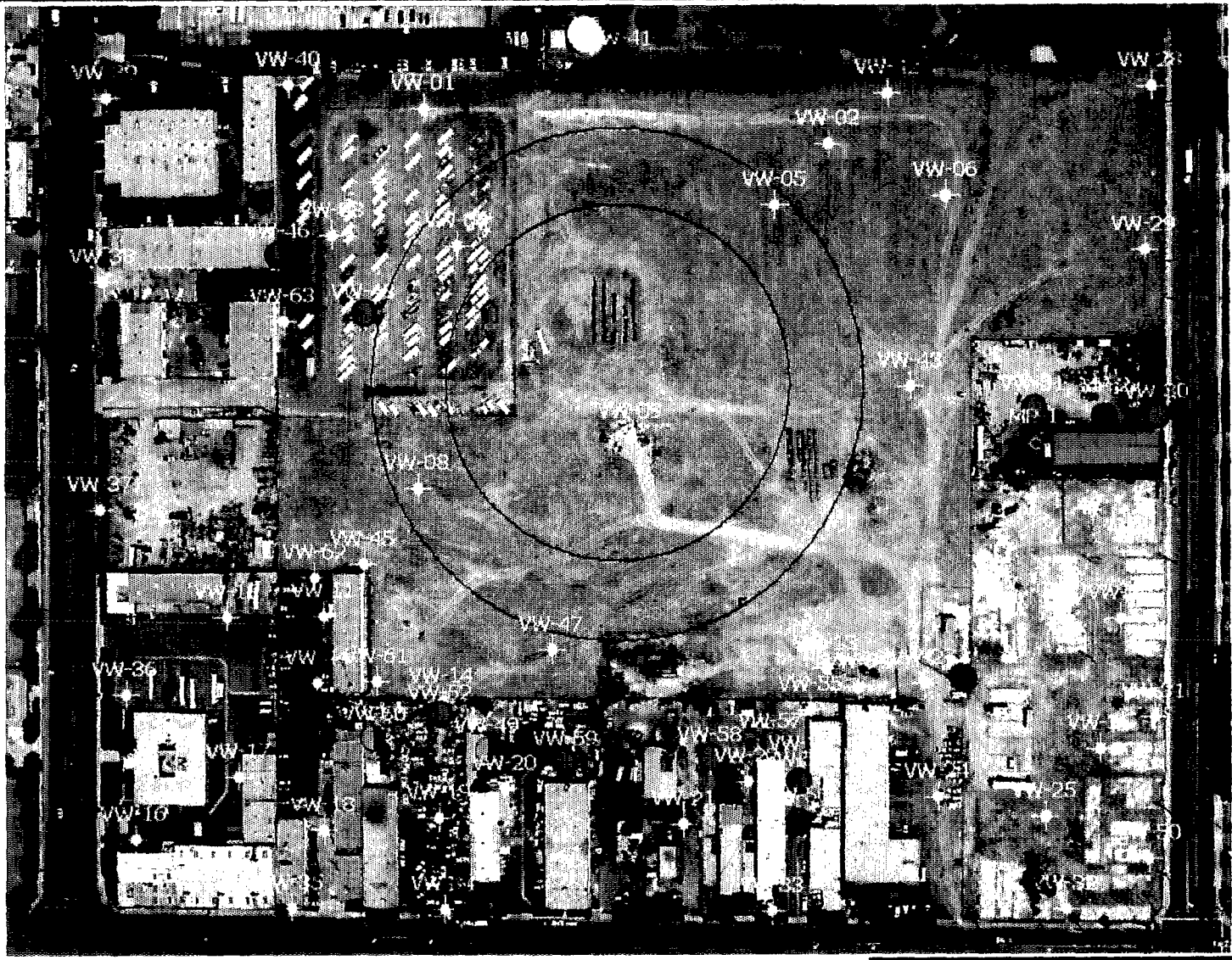
PROJECT NAVIGATOR, LTD.

EXCEEDANCES OF BENZENE CRITERIA (7.1ppb)

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 4.5



LEGEND

- SHALLOW WELLS
- DEEP WELLS
- BOTH WELLS

PROJECT NAVIGATOR, LTD.

EXCEEDANCES OF METHANE CRITERIA (1.25%)

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

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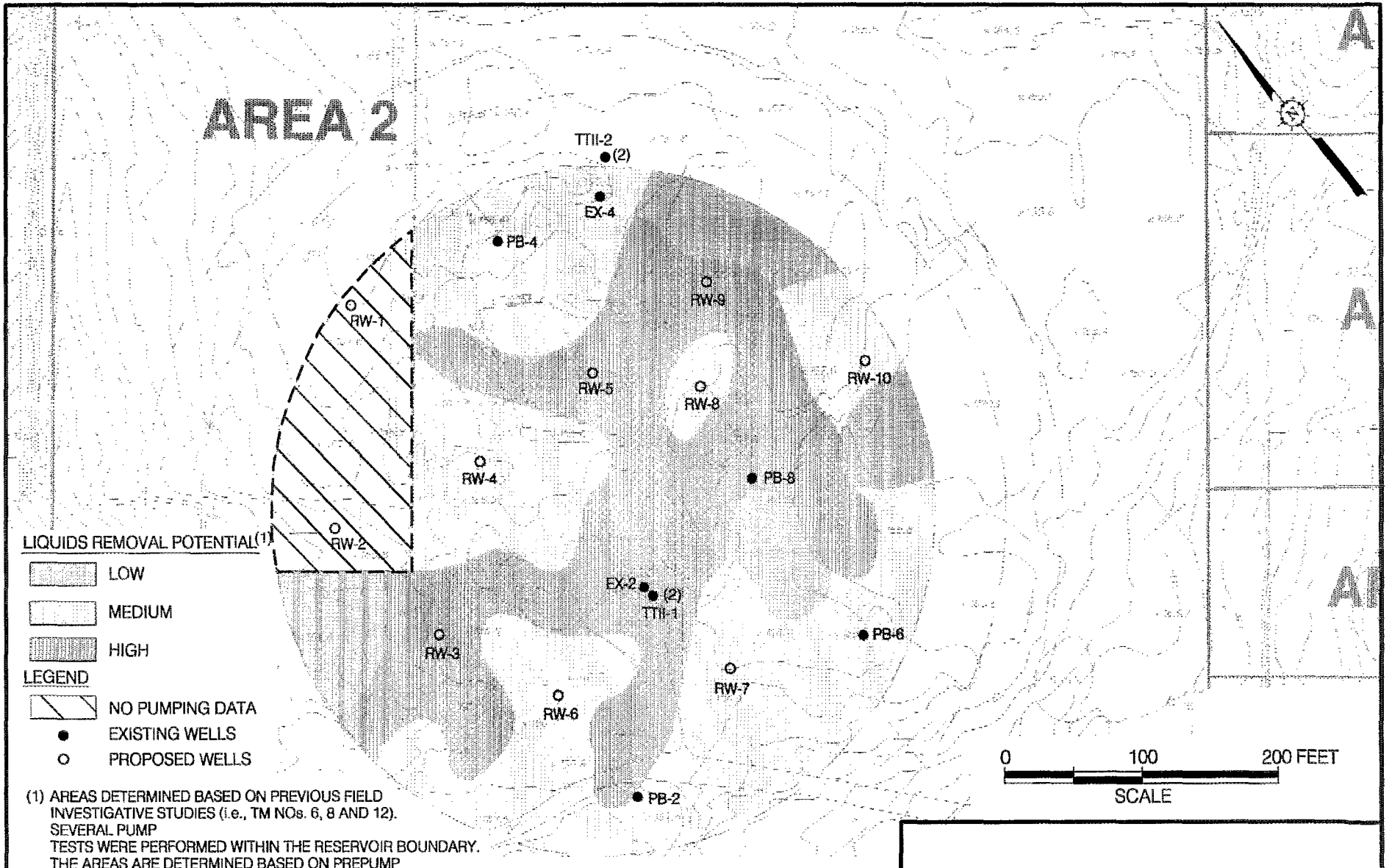
FIGURE 4.6



(1) AREAS DETERMINED BASED ON PREVIOUS FIELD INVESTIGATIVE STUDIES (i.e., TM NOs. 6, 8 AND 12). SEVERAL PUMP TESTS WERE PERFORMED WITHIN THE RESERVOIR BOUNDARY. THE AREAS ARE DETERMINED BASED ON PREPUMP TEST LIQUID ELEVATIONS VERSUS RECOVERY LEVELS. THE DELTA IN THE LIQUID LEVELS ARE SHOWN IN PARENTHESIS:
- LOW (<2')
- MEDIUM (0.2'-2')
- HIGH (>0.2')

(2) TEST TRENCH PIEZOMETER.

(3) LOCATIONS WERE VERBALLY APPROVED BY EPA DURING RESERVOIR LIQUIDS SUBCOMMITTEE MEETING ON JANUARY 22, 1999.

(4) "PB" WELL MAY BE REPLACED AS DISCUSSED IN SECTION 4.0. LOCATIONS OF REPLACEMENT WELLS WILL BE SELECTED BY WDIG AND EPA DURING TM NO. 13 ACTIVITIES.

EXISTING AND PROPOSED EXTRACTION WELL LOCATIONS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

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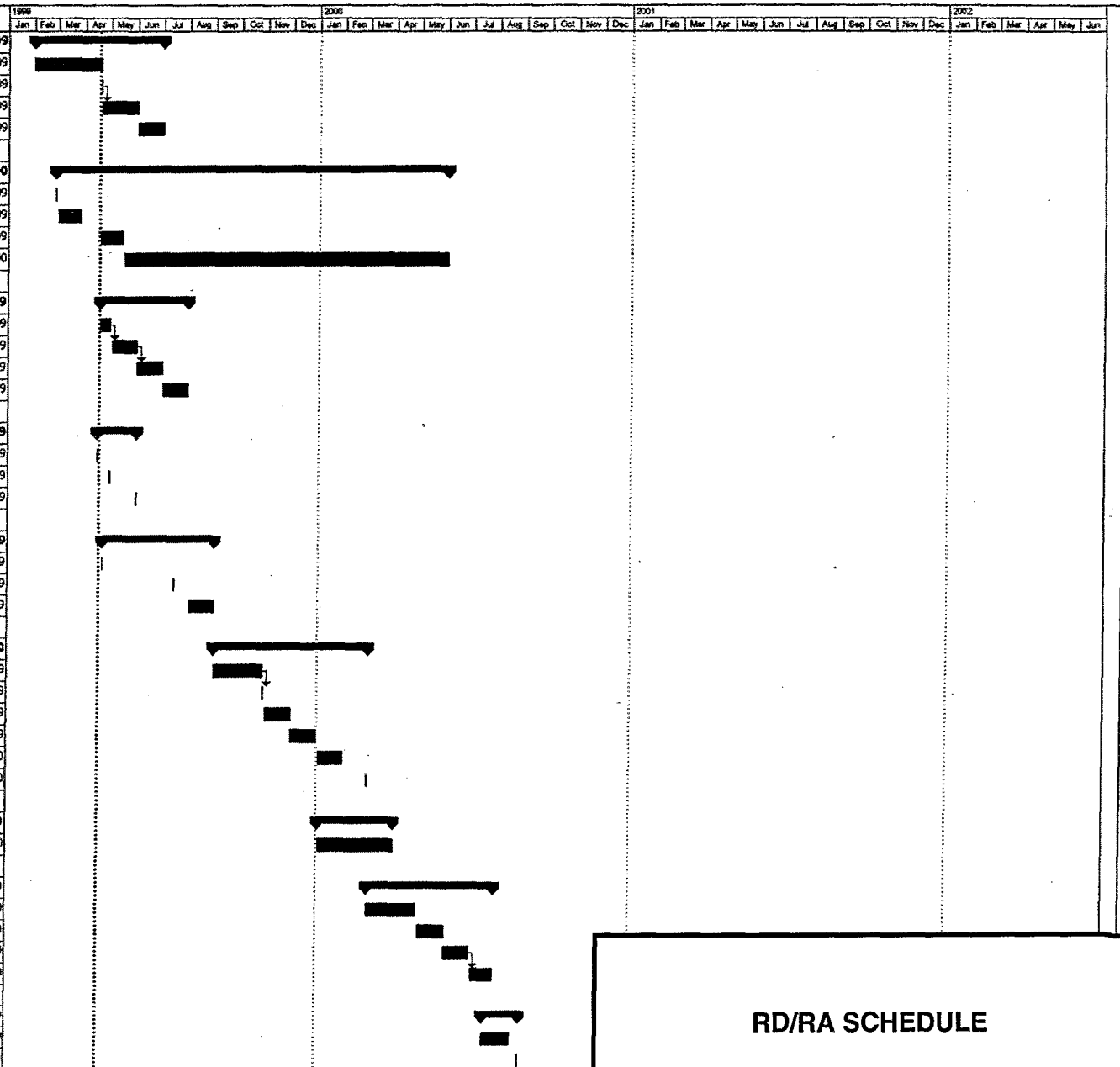
FIGURE 5.1

ID	Task Name	Start	Finish
1	**RD Investigative Summary Report**	**Mon 2/1/99**	**Wed 6/30/99**
2	Preparation	Mon 2/1/99	Mon 4/19/99
3	Submittal	Mon 4/19/99	Mon 4/19/99
4	EPA Review and Comment	Tue 4/20/99	Mon 5/31/99
5	Finalize	Tue 6/1/99	Wed 6/30/99
6			
7	**TM No. 13**	**Fri 2/26/99**	**Wed 5/31/00**
8	Submit Workplan	Fri 2/26/99	Fri 2/26/99
9	EPA Approval	Mon 3/1/99	Fri 3/26/99
10	Install System	Mon 4/19/99	Fri 5/14/99
11	Operate System	Mon 5/17/99	Wed 5/31/00
12			
13	**Supplemental Feasibility Study**	**Mon 4/19/99**	**Fri 7/30/99**
14	EPA Comments to Chapters 1 to 7	Mon 4/19/99	Fri 4/30/99
15	WDIG Resubmits Chapters 1 to 7	Mon 5/3/99	Mon 5/31/99
16	WDIG Submits Complete Draft	Tue 6/1/99	Wed 6/30/99
17	Finalize	Thu 7/1/99	Fri 7/30/99
18			
19	**Fact Sheets**	**Fri 4/16/99**	**Mon 5/31/99**
20	Reservoir/Liquids	Fri 4/16/99	Fri 4/16/99
21	Soil Gas/SVE	Fri 4/30/99	Fri 4/30/99
22	Landowner Data Packages	Mon 5/31/99	Mon 5/31/99
23			
24	**Public Meetings**	**Thu 4/22/99**	**Tue 8/31/99**
25	Liquids Removal Meeting with public	Thu 4/22/99	Thu 4/22/99
26	EPA & WDIG with Landowners	Thu 7/15/99	Thu 7/15/99
27	Other Informal Meetings	Mon 8/2/99	Tue 8/31/99
28			
29	**EPA Administrative Record**	**Wed 9/1/99**	**Tue 2/29/00**
30	Prepare Proposed Plan	Wed 9/1/99	Thu 10/28/99
31	Public Meeting on Proposed Plan	Fri 10/29/99	Fri 10/29/99
32	Public Comment Period on Proposed Plan	Mon 11/1/99	Tue 11/30/99
33	EPA Drafts ROD	Wed 12/1/99	Fri 12/31/99
34	EPA Issues Special Notice	Mon 1/3/00	Mon 1/31/00
36	EPA Signs Amended ROD	Tue 2/29/00	Tue 2/29/00
36			
37	**Remedial Design Agreement**	**Mon 1/3/00**	**Fri 3/31/00**
38	Negotiations	Mon 1/3/00	Fri 3/31/00
39			
40	**Remedial Design**	**Wed 3/1/00**	**Fri 7/28/00**
41	Prepare 90% Design	Wed 3/1/00	Fri 4/28/00
42	EPA Comments	Mon 5/1/00	Wed 5/31/00
43	Prepare 100% Design Report	Thu 6/1/00	Fri 6/30/00
44	EPA Approval of Design	Mon 7/3/00	Fri 7/28/00
45			
46	**Remedial Action**	**Mon 7/17/00**	**Mon 8/28/00**
47	Select Contractors	Mon 7/17/00	Fri 8/18/00
48	Mobilize to Field	Mon 8/28/00	Mon 8/28/00



RD/RA SCHEDULE

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 5.2

APPENDIX A: TECHNICAL MEMORANDUM NO. 10 - ADDITIONAL SOIL SAMPLING AND LEACHABILITY TESTING DATA (REVISED TEXT INCLUDED)

APPENDIX B: TECHNICAL MEMORANDA NOS. 6, 8 AND 12 - RESERVOIR LIQUIDS TESTING LABORATORY ANALYTICAL DATA AND CHAINS-OF-CUSTODY (REVISED TEXT INCLUDED)

APPENDIX C: 1998 ANNUAL SOIL GAS MONITORING REPORT DATA

APPENDIX D: 1998 ANNUAL IN-BUSINESS AIR MONITORING REPORT DATA

APPENDIX A

TECHNICAL MEMORANDUM NO. 10 -
ADDITIONAL SOIL SAMPLING AND LEACHABILITY TESTING DATA
REVISED TEXT

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1.0 INTRODUCTION

1. This Report of Findings (ROF) has been prepared to summarize the activities conducted at the Waste Disposal, Inc (WDI) Superfund Site as outlined in Technical Memorandum (TM) No. 10 - Additional Soil Sampling and Leachability Testing. TM No. 10 was approved by the United States Environmental Protection Agency (EPA) on September 2, 1998. The purpose of this sampling activity was to determine the potential leachability of constituents of concern from the areas shown in Figure 1, for use in expanding the range of capping and excavation/disposal options for areas outside the reservoir as part of the Feasibility Study (FS) process.

2. The following activities were conducted according to the scope of work outlined in TM No. 10:
   - Collect and analyze fill and waste material samples from five locations onsite.
   - Analyze the samples by Toxicity Characteristics Leaching Procedure (TCLP) and Soluble Threshold Limit Concentration (STLC) methods.
   - Provide data to compare the characteristics of materials from inside and outside the reservoir.

2.0 SAMPLING PROCEDURES AND CHEMICAL ANALYSIS

2.1 DESCRIPTIONS AND PROCEDURES FOR SAMPLING AND ANALYSIS

1. Fill and waste material samples were collected from the areas shown in Figure 1, using procedures outlined in the Revised Supplemental Field Sampling and Analysis Plan (Rev. 2) and the Revised Supplemental Quality Assurance Project Plan (Rev. 2), submitted to Environmental Protection Agency (EPA) November 17, 1997 and approved December 2, 1997. Table 1 shows the location and depth interval for each sample collected.

2. Samples were obtained by hollow-stem auger drilling using a split spoon sampler with 2-inch x 6-inch brass tube liners. The following materials were sampled:
   - Fill material (approximately at 0 to 5 feet).
   - Waste material (sump-like material approximately at 5 to 20 feet).

   The brass tube liners were fitted with end caps, labeled and placed into prechilled coolers for delivery to the laboratory under Chain-of-Custody (COC) protocol.

3. Samples for total volatiles analysis (EPA Method 8260A and TCLP) were collected using an EMCOM sampler following EPA Method 5035. The samples were collected immediately on recovery of the brass sampling tube, sealed, placed into prechilled coolers and delivered to the laboratory under COC protocol. Upon receipt of the samples, the laboratory prepared the TCLP extract within the required holding time (24 hours).

4. The TCLP samples were extracted with acetic acid and with deionized (DI) water at the laboratory using EPA Method 1311 procedures. The extracts were then analyzed using the following EPA Methods:
   - EPA Method 8260 (Volatile Organics).
   - EPA Method 8270 (Semivolatile Organics).
   - EPA Method 8081 (Pesticides and PCBs).
   - EPA Method 6010A, 7060, 7421, 7470 and 7740 for metals.

5. In addition, the samples were extracted using California's CAM-WET test (CR 66699[A]) with DI water (48 hour period to simulate rain infiltration), and analyzed for metals using the EPA methods listed above.

3.0 SUMMARY OF ANALYTICAL RESULTS

3.1 TOTAL VOLATILE ORGANICS (VOCS)

1. Table 2 provides a summary of the total VOC analysis results. The majority of the constituents were nondetect with the exception of the following:
   - WDI-LS-1 (Waste): Naphthalene (23 mg/kg).
   - WDI-LS-2 (Fill): Naphthalene (0.006 mg/kg).
   - WDI-LS-2 (Waste): Naphthalene (0.12 mg/kg).
   - WDI-LS-3 (Waste): Ethylbenzene (11 mg/kg), Naphthalene (37 mg/kg), Xylene (64 mg/kg).
   - WDI-LS-4 (Waste): Benzene (4.2 mg/kg), Ethylbenzene (10 mg/kg), Naphthalene (18 mg/kg), Toluene (28 mg/kg), Xylene (74 mg/kg).
   - WDI-LS-5 (Fill): Naphthalene (1.0 mg/kg).
   - WDI-LS-5 (Waste): Ethylbenzene (2.1 mg/kg), Naphthalene (2.6 mg/kg), Xylene (7.8 mg/kg).

2. The results shown in Table 2 are consistent with the site data from previous investigations (i.e., December 1997 Geoprobe Sampling) which indicates a limited amount of VOCs in the fill and waste material.

3. Using the total VOC data and the TCLP dilution factor, (i.e., 20), the following conclusions can be made from the total VOC data:
   - Fill Samples (WDI-LS-1 through WDI-LS-5):
     - VOCs would be below TCLP and MCL limits.
   - Waste Samples (WDI-LS-1 and WDI-LS-2):
     - VOCs would be below TCLP limits.
   - Waste Samples (WDI-LS-3, WDI-LS-4 and WDI-LS-5):
     - VOCs would be below TCLP limits for all the constituents with the exception of vinyl chloride in sample WDI-LS-3. Sample WDI-LS-3 had a high detection limit (1 to 2 mg/kg) for vinyl chloride; however, the result does not necessarily mean that vinyl chloride is present.

3.2 TCLP ANALYSIS RESULTS

1. The results of the TCLP testing are provided in Table 3. A summary of the TCLP data is provided in Table 4.

2. Based on the TCLP results there were no samples which indicated detectable levels exceeding TCLP limits.

3. As shown in Table 4, several constituents had elevated TCLP detection and reporting limits. However, using the standard one half the detection limit for each compound, there would be no TCLP exceedances with the exception of vinyl chloride which had a detection limit of greater than twice the TCLP limit. Again, this result does not necessarily mean that vinyl chloride is present.

3.3 STLC ANALYSIS RESULTS

1. The California Wet Test, also known as the STLC Test, is generally considered to be more aggressive than the Federal TCLP Test. The STLC analysis focuses on metals, one VOC, trichloroethylene, and pesticides/PCBs. Table 5 provides a summary of the STLC data. As indicated in Table 5, one exceedance of the STLC for lead was observed, in Sample WDI-LS-5 (fill). The sample contained 5.07 mg/L lead compared to the STLC limit of 5.0 mg/L. This exceedance is not considered significant, since it is well within the expected accuracy of the method.

3.4 DEIONIZED WATER LEACH

1. To determine the potential for leaching of constituents due to rainwater infiltration, the samples were also extracted using DI water for 48 hours, in comparison to the standard 18-hour TCLP extraction procedure. Table 6 provides a summary of the DI water leaching results. The results of this test indicated the following:
   - The use of DI water significantly reduces the amount of leachable constituents.
   - No exceedances of the TCLP criteria were observed.

4.0 CONCLUSIONS

1. Based on the data generated, it appears that the fill and waste materials are not considered hazardous by Federal TCLP or State STLC criteria. The only exception to this conclusion is vinyl chloride which had a significantly high detection limit in this testing episode to determine the status of vinyl chloride. However, based on the other VOC levels, it is unlikely that vinyl chloride will exceed the TCLP limit. As discussed in Section 3.3, one minor STLC exceedance was observed for lead in Sample WDI-LS-5 (fill). This exceedance is not considered significant since the result is well within the expected range of accuracy for the method.

2. Due to some of the high detection limits observed during this test, a full evaluation of the potential leaching constituents above the maximum contaminant levels (MCLs) for drinking water could not be completed. The elevated detection limits were due to the presence of oily hydrocarbons and drilling muds from the sump-like materials.

3. A comparison of the results of the reservoir samples and the materials outside the reservoir showed only minimal differences in leachability characteristics.

4. Evaluation of the deionized leaching results confirmed that the potential for leaching under rain infiltration conditions is very low, and well below the TCLP acid extraction levels. This indicates that it is unlikely that significant leaching has occurred in the past, which is supported by quarterly ground water data collected at the site.

5. Based on the data presented in this ROF, the materials tested appear to be classified as nonhazardous for disposal purposes.

TABLE 1

SAMPLING LOCATION, MEDIA SAMPLED AND SAMPLING INTERVAL WASTE DISPOSAL, INC. SUPERFUND SITE

SAMPLE LOCATION	SAMPLE I.D.	MEDIA SAMPLED	SAMPLE INTERVAL (ft)
Area 7	WDI-LS-1(F)	Fill	3 to 4.5
	WDI-LS-1(W)	Waste	10 to 11.5
Area 4	WDI-LS-2(F)	Fill	3 to 4.5
	WDI-LS-2(W)	Waste	10 to 11.5
Area 5	WDI-LS-3(F)	Fill	3 to 4.5
	WDI-LS-3(W)	Waste	10 to 11.5
Area 2 (C&E)	WDI-LS-4(F)	Fill	2.5 to 4
	WDI-LS-4(W)	Waste	7 to 8.5
Area 2 (Reservoir)	WDI-LS-5(F)	Fill	3 to 4.5
	WDI-LS-5(W)	Waste	10 to 11.5

94-256/Rpts/ReDeInSuRe/App A (4/16/99/ey)

F = Fill material
W = Waste material

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TABLE 2

ANALYTICAL DATA FOR VOLATILE ORGANIC COMPOUNDS FROM SOILS TOTAL ANALYSIS WASTE DISPOSAL, INC. SUPERFUND SITE

CONSTITUENT	SAMPLE IDENTIFICATION AND ANALYTICAL RESULTS (EPA METHOD 8260)									
	WDI-LS-1		WDI-LS-2		WDI-LS-3		WDI-LS-4		WDI-LS-5	
	Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste
Benzene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	4.2	<0.76	<1.2
Carbon Tetrachloride	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
Chlorobenzene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
Chloroform	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
1,2-Dibromoethane	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
1,4-Dichlorobenzene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
1,2-Dichloroethane	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
1,1-Dichloroethylene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
Ethylbenzene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	11	<0.0087	10	<0.76	2.1
Methylene Chloride	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
Naphthalene	<0.0057	23	0.0061	0.12	<0.0049	37	<0.0087	18	1	2.6
Tetrachloroethylene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
Toluene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	28	0.8	<1.2
1,1,1-Trichloroethane	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
Trichloroethylene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
Vinyl Chloride	<0.011	<2.0	<0.01	<0.018	<0.0099	<8.6	<0.017	<2.6	<1.5	<2.3
Xylene	<0.0057	<1.0	0.025	<0.0088	<0.0049	64	<0.0087	74	<0.76	7.8

94-256/Rpts/ReDeInSuRe/App A (4/16/99/ey)

NA = Not Analyzed

Note: All concentrations are reported in ppm (mg/kg) unless otherwise noted.
Numbers in bold indicate a detected concentration.

TRC

TABLE 3

TCLP ANALYTICAL RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE

CHEMICAL	TCLP LIMIT (mg/L)	STLC (mg/L)	MCL (mg/L)	TTLC (mg/kg)	SAMPLE IDENTIFICATION ANALYTICAL RESULTS (EPA METHODS 8260, 8270, 8081, 6010A, 7060, 7421, 7470 AND 7740)									
					WDI-LS-1		WDI-LS-2		WDI-LS-3		WDI-LS-4		WDI-LS-5	
					Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste
Arsenic	5	5	0.05	500	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Barium	100	100	1,000	10,000	0.503	3.09	0.75	2.27	0.465	6.89	0.9	2.1	0.275	0.716
Beryllium	NE	0.75	0.004	75	0.006	0.009	0.008	0.006	0.006	0.009	0.007	0.009	0.013	7.2
Cadmium	1	1	0.005	100	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0181	<0.01	<0.01	<0.01
Chromium	5	5	0.05	500	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	5	5	0.015	1,000	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075
Mercury	0.2	0.2	0.002	20	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Selenium	1	1	0.05	100	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Silver	5	5	0.1	500	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Thallium	NE	7	0.002	70	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.5	NE	0.001	NE	<0.028	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
Carbon Tetrachloride	0.5	NE	0.0005	NE	<0.028	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
Chlordane	0.03	0.25	0.0001	2.5	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chlorobenzene	100	NE	0.07	NE	<0.028	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
Chloroform	6	NE	NE	NE	<0.028	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
1,4-Dichlorobenzene	7.5	NE	0.005	NE	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

TCLP = Toxicity Characteristics Leaching Procedure, 40 CFR, Part 26.
STLC = Soluble Threshold Limit Concentration, CCR Title 22.
MCL = Maximum Contaminant Level based on CCR Title 22 (MCLs will be used to assess ground water protectiveness based on TCLP and STLC results).
TTLC = Total Threshold Limit Concentration, CCR Title 22.
NE = None Established.

NA = Not Analyzed.

= Potential exceedance of TCLP levels due to elevated detection limits.

Note: All concentrations are reported in ppm (mg/L and mg/kg = ppm). Numbers in bold indicate a detectable concentration.

(1) Results pending.

TRC

TABLE 3

TCLP LABORATORY DATA
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

CHEMICAL	TCLP LIMIT (mg/L)	STLC (mg/L)	MCL (mg/L)	TTLC (mg/kg)	SAMPLE IDENTIFICATION ANALYTICAL RESULTS (EPA METHODS 8260, 8270, 8081, 6010A, 7060, 7421, 7470 AND 7740)									
					WDI-LS-1		WDI-LS-2		WDI-LS-3		WDI-LS-4		WDI-LS-5	
					Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste
Ethylbenzene	NE	NE	0.7	NE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	NE	NE	1.0	NE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene	NE	NE	10	NE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	0.5	NE	0.0005	NE	<0.028	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
1,1-Dichloroethylene	0.7	NE	0.006	NE	<0.028	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
Heptachlor	0.008	0.47	0.00001	4.7	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Lindane	0.04	0.4	0.0002	4	<0.0004	<0.004	<0.0004	<0.004	<0.0004	<0.004	<0.0004	<0.004	<0.0004	<0.004
Pentachlorophenol	100	1.7	0.001	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Polychlorinated Biphenyls	NE	5	0.0005	50	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloroethylene	0.7	NE	0.005	NE	<0.028	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
Trichloroethylene	0.5	204	0.005	2,400	0.21	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
Vinyl Chloride	0.2	NE	0.0005	NE	<0.055	<2.1	<1.3	<1.9	<1.3	<1.9	<1.4	<2.4	<1.5	<1.8

TCLP = Toxicity Characteristics Leaching Procedure, 40 CFR, Part 26.
STLC = Soluble Threshold Limit Concentration, CCR Title 22.
MCL = Maximum Contaminant Level based on CCR Title 22 (MCLs will be used to assess ground water protectiveness based on TCLP and STLC results).
TTLC = Total Threshold Limit Concentration, CCR Title 22.
NE = None Established.
NA = Not Analyzed.
= Potential exceedance of TCLP due to elevated detection limits.
Note: All concentrations are reported in ppm (mg/L) unless otherwise noted. Numbers in bold indicate a detectable concentration.

TABLE 4

SUMMARY OF TCLP AND STLC RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE

SAMPLE NO.	AREA	SAMPLE TYPE	TCLP EXTRACT RESULTS Constituents Exceeding TCLP(1)	STLC EXTRACT RESULTS Constituents Exceeding STLC
WDI-LS-1	7	Fill	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None
WDI-LS-1	7	Waste	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) PCE(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None
WDI-LS-2	4	Fill	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None

(1) Laboratory reporting limit for this compound exceeds TCLP limits.
(2) Using a value of one half the detection limit, the compound would be less than the TCLP limit.
(3) Does not necessarily mean vinyl chloride is present, only that the detection limit is 1.0 to 1.9 mg/L.

TABLE 4

SUMMARY OF TCLP AND STLC RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

SAMPLE NO.	AREA	SAMPLE TYPE	TCLP EXTRACT RESULTS Constituents Exceeding TCLP[1]	STLC EXTRACT RESULTS Constituents Exceeding STLC
WDI-LS-2	4	Waste	VOC's Benzene[2] Carbon Tetrachloride[2] 1,2 Dichloroethane[2] 1,1 Dichloroethene[2] PCE[2] TCE[2] Vinyl Chloride[3] SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None
WDI-LS-3	5	Fill	VOC's Benzene[2] Carbon Tetrachloride[2] 1,2 Dichloroethane[2] TCE[2] Vinyl Chloride[3] SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None
WDI-LS-3	5	Waste	VOC's Benzene[2] Carbon Tetrachloride[2] 1,2 Dichloroethane[2] 1,1 Dichloroethene[2] PCE[2] TCE[2] Vinyl Chloride[3] SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None

(1) Laboratory reporting limit for this compound exceeds TCLP limits.
(2) Using a value of one half the detection limit, the compound would be less than the TCLP limit.
(3) Does not necessarily mean vinyl chloride is present, only that the detection limit is 1.0 to 1.9 mg/L.

TABLE 4

SUMMARY OF TCLP AND STLC RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

SAMPLE NO.	AREA	SAMPLE TYPE	TCLP EXTRACT RESULTS Constituents Exceeding TCLP(1)	STLC EXTRACT RESULTS Constituents Exceeding STLC
WDI-LS-4	2	Fill	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None
WDI-LS-4	2	Waste	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals Lead(4) Pesticides/PCB's None
WDI-LS-5	R	Fill	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) PCE(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None

(1) Laboratory reporting limit for this compound exceeds TCLP limits.
(2) Using a value of one half the detection limit, the compound would be less than the TCLP limit.
(3) Does not necessarily mean vinyl chloride is present, only that the detection limit is 1.0 to 1.9 mg/L.
(4) A value of 5.07 mg/L, marginally exceeded the STLC limit of 5.0 mg/L.

TABLE 4

SUMMARY OF TCLP AND STLC RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

SAMPLE NO.	AREA	SAMPLE TYPE	TCLP EXTRACT RESULTS Constituents Exceeding TCLP(1)	STLC EXTRACT RESULTS Constituents Exceeding STLC
WDI-LS-5	R	Waste	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) PCE(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None

(1) Laboratory reporting limit for this compound exceeds TCLP limits.
(2) Using a value of one half the detection limit, the compound would be less than the TCLP limit.
(3) A value of 5.07 mg/L, marginally exceeded the STLC limit of 5.0 mg/L.

TABLE 5

STLC LABORATORY DATA
WASTE DISPOSAL, INC. SUPERFUND SITE

CHEMICAL	TCLP LIMIT (mg/L)	STLC (mg/L)	MCL (mg/L)	TTLC (mg/kg)	EPA METHODS 8260, 8270, 8081, 6010A, 7060, 7421, 7470 AND 7740 RESULTS									
					WDI-LS-1		WDI-LS-2		WDI-LS-3		WDI-LS-4		WDI-LS-5	
					Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste
Antimony(1)	NE	15	0.006	500	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Arsenic	5	5	0.05	500	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barium	100	100	1,000	10,000	4.2	12.7	6.5	19.6	4.46	22	5.8	9.92	4.91	7.2
Beryllium	NE	0.75	0.004	75	0.00696	0.00918	0.00802	0.00627	0.0062	0.00911	0.00689	0.00964	0.013	0.00876
Cadmium	1	1	0.005	100	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.0911	<0.05	<0.05	<0.05
Chromium	5	5	0.05	500	0.163	0.198	0.333	0.201	0.507	0.199	0.11	0.241	0.119	0.461
Copper	NE	25	1	2,500	1.9	0.115	5.22	0.178	1.71	0.579	11.7	0.135	0.101	0.796
Lead	5	5	0.015	1,000	<0.375	0.64	2.64	1.69	1.04	0.529	2.52	4.94	5.07	4.06
Mercury	0.2	0.2	0.002	20	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Selenium	1	1	0.05	100	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	5	5	0.1	500	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
Thallium	NE	7	0.002	70	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	NE	250	5	5,000	1.49	1	7.89	7.3	6.1	20.6	10.3	12.1	4.64	8.22
Trichloroethane	0.5	204	0.0005	2,040										
Aldrin	NE	0.14	NE	1.4	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chlordane	0.03	0.25	0.002	2.5	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
DDT/DDD/DDE	NE	0.1	NE	1.0	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dieldrin	NE	0.8	NE	8.0	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Endrin	0.02	0.02	0.002	0.2	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Heptachlor	0.008	0.47	0.0004	4.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Methoxychlor	10.0	10.0	0.04	100	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCBs	NE	5.0	0.0005	50	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toxaphene	0.5	0.5	0.003	5.0	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

TCLP = Toxicity Characteristics Leaching Procedure, 40 CFR, Part 26
STLC = Soluble Threshold Limit Concentration, CCR Title 22
MCL = Maximum Contaminant Level based on CCR Title 22 (MCLs will be used to assess ground water protectiveness based on TCLP and STLC results)

TTLC = Total Threshold Limit concentration, CCR Title 22
NE = None Established
NA = Not Analyzed

Note: All concentrations are reported in ppm (mg/L and mg/kg = ppm). Concentrations in bold indicate a detectable value.

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TABLE 6

DI WATER LEACHATE LABORATORY DATA
WASTE DISPOSAL, INC. SUPERFUND SITE

CHEMICAL	TCLP LIMIT (mg/L)	STLC (mg/L)	MCL (mg/L)	TTLC (mg/kg)	EPA METHODS 8260, 8270, 8081, 6010A, 7060, 7421, 7470 AND 7740 RESULTS									
					WDI-LS-1		WDI-LS-2		WDI-LS-3		WDI-LS-4		WDI-LS-5	
					Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste
Arsenic	5	5	0.05	500	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barium	100	100	1,000	10,000	<0.02	**0.169**	<0.02	**0.113**	**0.0372**	**0.0354**	**0.0279**	**0.0343**	**0.0322**	**0.0325**
Beryllium	NE	0.75	0.004	75	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium	1	1	0.005	100	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chromium	5	5	0.05	500	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead	5	5	0.015	1,000	<0.375	<0.375	<0.375	<0.375	<0.375	<0.375	<0.375	<0.375	<0.375	<0.375
Mercury	0.2	0.2	0.002	20	<0.002	<0.002	<0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Selenium	1	1	0.05	100	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Silver	5	5	0.1	500	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
Thallium	NE	7	0.002	70	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	NE	250	5	5,000	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	NE	0.14	NE	1.4	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Anthracene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzene	0.5	NE	0.001	NE	(1)	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	**0.13**	<0.025	<0.025
Benzo(a)pyrene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Tetrachloride	0.5	NE	0.0005	NE	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Chlordane	0.03	0.25	0.0001	2.5	<0.00015	<0.0003	<0.00015	<0.00015	<0.00015	<0.00015	<0.00015	<0.00015	<0.00015	<0.00015
Chlorobenzene	100	NE	0.07	NE	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Chloroform	6	NE	NE	NE	NA	<0.025	<0.025	**0.036**	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Chrysene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
DDT	NE	0.1	NE	1	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

(1) Data not received.

TCLP = Toxicity Characteristics Leaching Procedure, 40 CFR, Part 26

STLC = Soluble Threshold Limit Concentration, CCR Title 22

MCL = Maximum Contaminant Level based on CCR Title22 (MCLs will be used to assess ground water protectiveness based on TCLP and STLC results).

TTLC = Total Threshold Limit concentration, CCR Title 22

NE = None Established

NA = Not Analyzed.

Note: All concentrations are reported in ppm (mg/L and mg/kg = ppm).

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TABLE 6

DI WATER LEACHATE LABORATORY DATA
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

CHEMICAL	TCLP LIMIT (mg/L)	STLC (mg/L)	MCL (mg/L)	TTLC (mg/kg)	EPA METHODS 8260, 8270, 8081, 6010A, 7060, 7421, 7470 AND 7740 RESULTS									
					WDI-LS-1		WDI-LS-2		WDI-LS-3		WDI-LS-4		WDI-LS-5	
					Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste
1,4-Dichlorobenzene	7.5	NE	0.005	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,2-Dichloroethane	0.5	NE	0.0005	NE	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
1,1-Dichloroethylene	0.7	NE	0.006	NE	NA	<0.025	<0.025	**0.063**	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Dieldrin	NE	0.08	NE	8	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Ethylbenzene	NE	NE	0.7	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor	0.008	0.47	0.00001	4.7	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Lindane	0.04	0.4	0.0002	4	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
2-Methylnaphthalene	NE	NE	NE	NE	<0.01	**0.0307**	<0.01	<0.01	<0.01	<0.01	<0.01	**0.0453**	<0.01	<0.01
Naphthalene	NE	NE	NE	NE	<0.01	**0.0145**	<0.01	<0.01	<0.01	<0.01	<0.01	**0.0784**	<0.01	<0.01
Pentachlorophenol	100	1.7	0.001	17	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Phenanthrene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Polychlorinated Biphenyls	NE	5	0.0005	50	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Pyrene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tetrachloroethylene	0.7	NE	0.005	NE	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Toluene	NE	NE	0.15	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	NE	NE	0.2	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethylene	0.5	204	0.005	2,400	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Vinyl Chloride	0.2	NE	0.0005	NE	NA	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

TCLP = Toxicity Characteristics Leaching Procedure, 40 CFR, Part 26
STLC = Soluble Threshold Limit Concentration, CCR Title 22
MCL = Maximum Contaminant Level based on CCR Title 22 (MCLs will be used to assess ground water protectiveness based on TCLP and STLC results)
TTLC = Total Threshold Limit concentration, CCR Title 22
NE = None Established
NA = Not Analyzed
Note: All concentrations are reported in ppm (mg/L and mg/kg = ppm).

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APPENDIX B

TECHNICAL MEMORANDA NOS. 6, 8 AND 12 -
RESERVOIR LIQUIDS TESTING
REVISED TEXT

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1.0 INTRODUCTION

1. This Report of Findings (ROF) has been prepared to summarize the reservoir liquids investigations conducted at the Waste Disposal, Inc. (WDI) Superfund site as outlined in the following Technical Memoranda (TMs):

   - TM No. 6 - Reservoir Liquids Recovery Testing
   - Addendum - TM No. 6 - Additional Extraction Wells and Pump Tests
   - TM No. 8 - Additional Reservoir Liquids Extraction Well/ Probe Sampling.
   - TM No. 12 - Additional Reservoir Liquids Recovery Testing and Piezometer Abandonment.

2. An Interim ROF for TM Nos. 6 and 8 was prepared and submitted to Environmental Protection Agency (EPA) in July 1998. The Interim ROF described the activities conducted as outlined in the Scope of Work in TM Nos. 6 and 8. The following summarizes these activities:

   - Installation of liquid extraction wells and monitoring probes in the buried central reservoir of the WDI site.
   - Pump testing of the installed wells.
   - Liquids chemistry characterization.
   - Soil gas characterization.

3. The purpose of TM Nos. 6 and 8 activities was to assist in determining the hydraulic yield potential and chemical characterization of the liquid material (free and aqueous phase) within the buried reservoir at the WDI site. The specific objectives for each of these activities were as follows:

   - Estimate the hydraulic yield of the saturated portion of the reservoir and extraction well radius of influence.
   - Delineate chemical and physical characteristics of both free and aqueous phases of encountered reservoir liquids.
   - Characterize chemistry of soil gas from evacuated portion of saturated reservoir material, if possible.

4. The results of the initial TM No. 6 activities (completed during the December 1997 to June 1998 timeframe) indicated the liquids extracted during the pump test were being yielded by the overlying fill soils and not the underlying, relatively impermeable waste material. To help verify this hypothesis, additional TM No. 6 activities (completed during the August to September 1998 timeframe) were performed. The additional activities consisted of two pump tests, performed at designated areas selected by EPA and Waste Disposal, Inc.

Group (WDIG). These areas were chosen based upon data collected from several 1-inch piezometers installed by EPA during July 1998. The piezometers were located on a 50-foot by 50-foot grid within the reservoir boundary. Figure 1 shows the location of the piezometers.

5. Liquids recovery tests were also performed as outlined in TM No. 12, which was approved by EPA on October 2, 1998. The tests consisted of purging 62 1-inch piezometers installed by EPA, noted above, and monitoring the recovery rates of the liquids. The data collected during the TM No. 12 recovery testing was used for the following:
   - Characterize the recharge rates of the reservoir liquids
   - Determine the presence and recovery rates of liquids as well as free product.
   - Determine if liquid levels return to static/background levels.
   - TM No. 12 also describes the procedure used to abandon the piezometers.

6. The findings described in this ROF for the reservoir liquids investigations will be incorporated in the Remedial Design (RD) Investigative Activities Summaries Report.

7. The remainder of this ROF is presented in the following sections:
   - Section 2.0 - TM Nos. 6, 8 and 12 Activities Performed
   - Section 3.0 - Findings
   - Section 4.0 - Conclusions

2.0 TM NOs. 6, 8 AND 12 ACTIVITIES PERFORMED

1. This section summarizes the reservoir liquids investigations completed as outlined in TM Nos. 6, 8 and 12. This section also describes how these activities were implemented and discusses changes to the planned scope of work that occurred due to encountered field conditions and observations.

2.1 TM NO. 6 ACTIVITIES

1. The scope of work for TM No. 6 activities included the following list of tasks:
   - Installation of six extraction wells and 16 monitoring probes (see Figure 2).
   - Monitoring of baseline conditions of the liquids in the buried reservoir in the newly installed wells and probes.
   - Performance of a series of step and cycle-pump tests on the extraction wells.

- Monitoring of free and aqueous phase recovery rates.
- Sampling of free and aqueous phase liquids in the extraction wells and monitoring probes.
- Sampling of soil gas in Extraction Well WDI-EX-2 (EX-2).
- Liquids sampling at other wells located within the reservoir.

Table 1 summarizes the execution sequence of these tasks.

2. As the scoped tasks were executed, field conditions dictated that some of the specifics outlined in TM No. 6 be modified, with EPA concurrence. The following paragraphs discuss each of the activities in detail, including the scope modifications.

2.1.1 PUMP TESTING AT EX-1 AND EX-2

1. The installation of WDI-EX-1 (EX-1) and monitoring probes WDI-P-1, -2, -3 and -4 were completed on December 11 and 12, 1997. The wells and probes were constructed to the bottom of the reservoir, approximately 22 to 24 feet in depth, with screened intervals extending through the fill and waste materials. Figures 3 and 4 illustrate the subsurface encountered during the well and probe installations. Appendix A contains the boring and construction logs for the wells and probes.

2. The stratigraphy of the reservoir materials was found to be relatively consistent. A silty sand to sandy silt fill soil layer of approximately 9 to 10 feet thick occurs over an approximately 15-foot layer of black stained clays (drilling muds) comprising the waste material. Initial monitoring of liquid levels indicated that EX-1 was essentially dry, although the monitoring probes each contained liquids at a consistent elevation. Free product was detected at each monitoring probe with varying thicknesses. These findings were consistent in liquid level monitoring events conducted through March 1998. Table 2 summarizes the liquid level monitoring data prior to pumping. Following March 1998, TM No. 6 activities were temporarily suspended due to adverse weather conditions.

3. TM No. 6 activities resumed in May 1998. At that time, EX-1 continued to be essentially dry. Based on these conditions, an additional extraction well, EX-2, was installed on May 4, 1998, at the location shown on Figure 2. Construction of EX-2 was similar to EX-1. Liquids were measured in EX-2 at levels consistent with the monitoring probes.

4. Well EX-2 and the monitoring probes were measured for background liquid level monitoring on May 4 through 7, 1998 using electric sounding and logging equipment. Between

May 5 and 11, 1998, WDIG and EPA's Emergency Response Team (ERT) sampled EX-2 and the monitoring probes. The initial 0.5 gallon per minute (gpm) pump test was originally scheduled to begin on May 11, 1998; however, due to significant drawdown in EX-2 and the monitoring probes by the sampling events performed by WDIG and ERT, a joint decision was made by TRC and EPA to postpone the start of the pump test until the liquids had sufficient time to recover to static levels.

5. The 0.5 gpm pump test was reinitiated on May 21, 1998. EX-2 was dewatered to the pump inlet in three hours and nineteen minutes (see Figure 5 for liquid drawdown data). Approximately 93 gallons of liquids were purged from the extraction well. The procedure in TM No. 6 called for a series of step tests with increasing pump rates (i.e., 1,1.5, 2.0 and 4.0 gpm). Results from the 0.5 gpm indicated that this procedure could not be implemented because of the low yield from the reservoir material. Following consultation with EPA, a decision was made to reduce the pump rate to 0.25 gpm.

6. The 0.25 gpm test was initiated on June 2, 1998. EX-2 dewatered in approximately five hours and five minutes. Approximately 232 gallons of liquids were extracted during this test. At the completion of this time, and after a consultation with EPA, it was decided to complete a series of pump cycle tests over a 24-hour period to establish if a sustainable liquid extraction rate could be achieved. The pump cycle tests were conducted manually by switching on the pump at full capacity until the well was dewatered, then allowing recharge. At full capacity the pump dewatered the wells in approximately two to three minutes. The recharge into the well ranged from 6 to 8 feet (see Figure 6 for liquid drawdown data). The pump was cycled on at approximately two to four hour intervals.

7. The approximate radius of influence and liquid drawdown conditions from pumping EX-2 are shown in Figures 7 and 8.

8. Approximately 325 gallons were extracted from EX-2 during the pump tests. At the completion of WDIG's pump test activities, ERT performed tests at EX-2 and generated approximately 2,500 additional gallons of liquids. Purged liquids were discharged to a 6,000-gallon Baker™ tank. Although TM No. 6 called for the expeditious disposal of these liquids, it was decided, with EPA's concurrence, that the liquids will remain contained onsite until future pumping activities are completed. On September 23, 1998 a composite sample was collected for three tanks and profiled for disposal. EPA approved Chemical Waste Management (CWM) of Azusa for the disposal facility of the purged liquids on

October 8, 1998. On October 29, 1998, the liquids were hauled offsite to CWM by Consolidated Waste Industries (CWI). Appendix B contains the laboratory reports and Chain-of-Custody.

9. Free and aqueous phase liquids were sampled and analyzed from EX-2 and monitoring probes prior to the 0.5 gpm pump test. EX-2, P-1 and VW-09 were also sampled at the conclusion of the 0.25 gpm pump test since only these wells showed an influence during the test. Analytical results are summarized on Tables 3 and 4.

10. A soil gas sample was collected from EX-2 on June 11, 1998. Soil gas samples from the monitoring probes were not collected because little to no portion of the probe screened interval was exposed. The analytical results of the volatile organic compounds (VOCs) detected in the soil gas samples are summarized below:

    - Vinyl Chloride: 34 ppm
    - Methylene Chloride: 0.78 ppm
    - trans-1, 2-Dichloroethene: 1.4 ppm
    - cis-1, 2-Dichloroethane: 15 ppm
    - 2-Butanane: 0.79 ppm
    - Benzene: 11 ppm
    - Trichloroethene: 8.5 ppm
    - Toluene: 15 ppm
    - 4-Methyl-2-Pentanone: 2.4 ppm
    - Tetrachloroethene: 0.46 ppm
    - Ethylbenzene: 1.4 ppm
    - m,p-Xylenes: 6.2 ppm
    - 0-Xylene: 1.7 ppm

    Additional VOCs were nondetect, and therefore, are not listed. These results shown above are higher than previous vapor well monitoring results from within the reservoir area. This is due to the pumping activity which can increase the volatilization of organics from liquids during drawdown and recovery, where the liquids can volatilize to fill the pore space. The sample was not analyzed for methane due to an oversight by the laboratory. Appendix B contains the laboratory reports and Chain-of-Custody.

11. Additional wells within the reservoir boundaries were also sampled for liquid characterization. The locations of these other wells are shown on Figure 9. The results of the sample analyses are summarized in Table 3.

12. Microbial analysis of the extraction liquids indicates the presence of aerobic and anaerobic bacteria in the samples, as shown in Table 4. In general, the microbial levels were relatively low (i.e., less than 1,000,000 organics/L), with the exception of WDI-NDP-3 (EX-4 monitoring probe) which had 2,400,000 and 2,900,000, anaerobic and aerobic organics/L, respectively. It was anticipated that the anaerobic bacteria levels would likely be in the range of 10 to 100 million organisms per liter given the anaerobic nature of the liquids. The lower than expected anaerobic bacterial levels are consistent with the observed low methane generation rates.

13. Samples of the oily liquids from the pump testing were also analyzed to determine the British Thermal Units (BTU) and sulfur contents to evaluate the potential for these materials to be used as an alternative fuel material, or blended with a fuel source for use in an industrial type boiler or incineration. Oily materials with a BTU over 12,000 may have the potential for use in fuels or fuel blend. Sulfur contents greater than one percent generally reduce the feasibility of use as a fuel. As shown in Table 4, several of the well samples exceed the 12,000 BTU level and therefore could be considered for use in fuels. The sulfur contents of the samples all appear well below the 1 percent level, which could allow their use as a fuel if disposal is required. It must be considered that the oily portion of the liquids is only a small amount of the overall liquids in the reservoir, and therefore use as an alternate fuel may not be practical.

2.1.2 PUMP TESTING AT EX-4 AND EX-6

1. Although it was initially hypothesized that the reservoir liquids were being extracted from overlying fill materials, the wastes in the reservoir appear to not contain liquids in a predictable uniform strata throughout the waste or fill material. Instead, based on comparing the results at EX-1 and EX-2 with the results at EX-4 and EX-6, where only a small quantity of liquids could be extracted, it appears that the reservoir is behaving in a noncontinuum fashion, in which there appear to be higher permeability lenses filled with liquids with less interconnectability and more varying direction and range of "Zone of Influence" (i.e., individual "liquid containing lenses"). However, to attempt to verify the initial hypothesis, an addendum to TM No. 6, Addendum-TM No. 6 Additional Extraction Wells and Pump Tests, was implemented. This addendum was approved by EPA on August 5, 1998.

The scope of the additional field investigative activities included the following:

- Installation of four liquid extraction wells (EX-3, -4, -5 and -6) at locations in the reservoir determined in conjunction with EPA's reservoir boring investigation results (see Figures 1 and 2). The locations were selected based on field observations of the EPA borings and after consensus between EPA's and WDIG's representatives. The construction of the extraction wells (EX-3, -4, -5 and -6) and 12 associated monitoring probes were similar to existing extraction wells (EX-1 and -2) and piezometers (P-1 through -4).
- Pump cycle tests were performed in the new extraction wells, with associated monitoring in the adjacent well(s) and probes. The cycle tests were completed using similar procedures employed for the pump cycle test at EX-2.
- Liquid samples were collected from the new wells for chemical characterization, using the procedures and suite of analysis outlined in TM No. 6.

2. The installation of extraction wells EX-3 through –6 and monitoring probes (NSP-1, -2, -3; NDP-1, -2, -3; SSP-1, -2, -3; SDP-1, -2, -3) were completed on August 10, 11 and 12, 1998. Figure 2 shows the locations of the wells and probes. The deep probes located within the northern boundary of the reservoir (i.e., NDP probes) were constructed to the bottom of the reservoir, approximately 22 to 24 feet in depth, with screened intervals extending only through the waste material. The shallow probes (i.e., NSP probes) were constructed to the bottom of the fill material, approximately 9 to 10 feet, with screened intervals extending only through the fill material. The probes located within the southern or central test area of the reservoir (i.e., SAP and SSP probes) were constructed similar to the probes noted above. Figures 10 through 13 illustrate the subsurface encountered during the well and probe installations. Appendix A contains the boring and construction logs for the wells and probes.

3. The stratigraphy of the reservoir materials was consistent with previous TM No. 6 activities. A silty sand to sandy silt fill soil layer of approximately 9 to 10 feet thick occurs over an approximately 15-foot layer of black stained clays (drilling muds) comprising the waste material. Monitoring of liquid levels indicated that the shallow extraction wells (EX-3 and -5) were essentially dry, however the shallow monitoring probes contained liquids at similar elevations to the deep monitoring probes. Free product was detected in a few of the monitoring probes with varying thicknesses. Table 2 summarizes the liquid level monitoring data prior to pumping.

4. Free and aqueous phase liquids were sampled and analyzed from the extraction wells and monitoring probes prior to the pump tests. Analytical results are summarized on Tables 3A and 4 and discussed in Section 2.1.1.

5. The EX-4 pump test was initiated on August 19, 1998. The pump cycle tests were conducted by electrode sensors switching on the pump at full capacity until the well was dewatered, then allowing recharge. Refer to Figure 14 for the location of the sensors. EX-4 was dewatered to the pump inlet in approximately 10 minutes (see Figure 15). The extraction well recovered to the sensor after 4.5 days. A complete series of two pump cycle tests were performed over an 18 day period to establish if a sustainable liquid extraction rate could be achieved. Due to the slow recovery rate, only 2 cycles occurred over 18 days. A total of approximately 42 gallons of liquids were purged from EX-4 during this time.

6. The EX-6 pump test was initiated on September 15, 1998. The pump test was set up and was similar to the EX-4 pump test. EX-6 dewatered in approximately 10 minutes (see Figure 16). A complete series of ten pump cycle tests was performed over a 14 day period to establish if a sustainable liquid extraction rate could be achieved. A total of approximately 139 gallons of liquids were extracted during this test.

7. There did not appear to be a radius of influence during the pumping from EX-4 and -6 possibly due to a higher permeability lense bounded by a less permeable material (see Figures 10 through 13). Liquid levels monitored in the deep probes which are located 10, 20 and 40 feet from the extraction wells showed minor fluctuations in elevations which could be influenced by the barometric pressure. These observations of the deep monitoring probes are consistent with EX-2 pump test data. However, during the recovery phase of EX-4 pump test, a slight decrease in liquid level at NDP-2 was observed. This could have been influenced during EPA trenching activities which occurred during the same timeframe.

8. A total of approximately 180 gallons were extracted from EX-4 and -6 during the pump tests and stored in two separate Baker Tanks from EX-2 purged liquids. These liquids were sampled and handled similar to EX-2 purged liquids. Refer to Section 2.1.1 for a complete description.

6. The purpose of performing the pumping activities was to demonstrate whether pumping was feasible to extract liquids from the reservoir. Based on the liquids investigations, pumping or trenching are not viable approaches to efficiently extract liquids from the reservoir. Aside from the mechanical impracticability of liquid extraction, chemical analyses of the liquids show that they are not hazardous. It is also important to note that ground water monitoring results do not indicate releases from the reservoir.

TABLE 5

LIQUIDS LEVELS IN EPA PIEZOMETERS
TM NO. 12 ACTIVITIES
WASTE DISPOSAL, INC. SUPERFUND SITE

(Continued)

WELL ID	DATE MONITORED	LIQUID LEVEL BEFORE PURGE		LIQUID LEVEL AFTER PURGE[1]		FINAL CHANGE IN LIQUID LEVEL		CHANGE IN WATER LEVEL	RECOVERY	INITIAL PRODUCT THICKNESS	FINAL PRODUCT THICKNESS
		PRODUCT (ft bgs.)	WATER (ft. bgs)	PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft.)	WATER (ft.)	(feet)	(%)	(feet)	(feet)
H-3 (S)	10/5/98	ND	5.15	ND	5.15			0.00	100.0	ND	ND
	10/5/98			ND	5.25			-0.10	98.1		
	10/6/98			ND	5.26	ND	-0.11	-0.11	97.9		
H-3 (D)	10/5/98	5.06	5.07	5.06	5.07			0.00	100.0	0.01	0.10
	10/5/98			5.10	5.15			-0.08	98.4		
	10/6/98			5.10	5.20	-0.04	-0.13	-0.13	97.4		
H-4	10/5/98	3.40	9.87	13.00	17.36			-7.49	NA	6.47	5.2
	10/5/98			6.13	9.20			+0.67	106.8		
	10/6/98			4.00	9.20	-0.60	+0.67	+0.67	106.8		
H-5	10/5/98	4.60	5.65	6.90	10.12			-4.47	NA	1.05	1.11
	10/5/98			4.65	4.70			+0.95	116.8		
	10/6/98			4.47	5.58	+0.13	+0.07	+0.07	101.2		
H-6	10/2/98	4.19	5.00	NM	12.30			-7.30	NA	0.81	0.08
	10/2/98			6.30	6.40			-1.40	72.0		
	10/5/98			4.32	4.40	-0.13	+0.60	+0.60	112.0		
H-7	10/2/98	4.92	5.55	NM	10.50			-4.95	NA	0.63	0.15
	10/2/98			4.98	8.50			-2.95	46.8		
	10/5/98			5.00	5.15	-0.08	+0.40	+0.40	107.2		
H-8	10/2/98	ND	4.65	ND	14.10			-9.45	NA	ND	ND
	10/2/98			ND	4.68			-0.03	99.4		
	10/5/98			ND	4.65	ND	0.00	0.00	100.00		
I-4	10/5/98	5.05	6.52	NM	6.70			-0.18	NA	1.47	1.43
	10/5/98			5.15	6.35			+0.17	102.6		
	10/6/98			5.17	6.60	-0.08	-0.08	-0.08	98.8		
I-5	10/5/98	3.05	4.80	NM	7.45			-2.65	NA	1.75	3.00
	10/5/98			3.60	7.00			-2.20	54.2		
	10/6/98			3.00	6.00	+0.05	-1.20	-1.20	75.0		
I-6	10/2/98	3.65	4.25	NM	3.70			+0.55	112.9	0.60	0.21
	10/2/98			3.69	3.76			+0.49	111.5		
	10/5/98			3.74	3.95	-0.09	+0.30	+0.30	107.1		
I-7	10/2/98	ND	4.12	ND	4.20			-0.08	NA	ND	ND
	10/2/98			ND	4.10			+0.02	100.5		
	10/5/98			ND	4.15	ND	-0.03	-0.03	99.3		

(1) Initial Reading, 1-Hr Reading, 24-Hr Reading

Note: Some of the levels collected after the one-hour readings exceeded 24-hours. Refer to date monitored.

NA = Not applicable
ND = Not detected
NM = Not measured
ft bgs = feet below ground surface

S = Shallow
D = Deep
\+ = Greater than initial (prepurge) reading
\- = Less than initial (prepurge) reading

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APPENDIX E: TECHNICAL MEMORANDUM NO. 9A - SOIL VAPOR EXTRACTION TREATABILITY STUDY DATA

APPENDIX F: 1998 ANNUAL GROUND WATER MONITORING REPORT DATA

APPENDIX G: 1998 STORMWATER POLLUTION PREVENTION PLAN DATA

APPENDIX A: TECHNICAL MEMORANDUM NO. 10 - ADDITIONAL SOIL SAMPLING AND LEACHABILITY TESTING DATA (REVISED TEXT INCLUDED)

APPENDIX B: TECHNICAL MEMORANDA NOS. 6, 8 AND 12 - RESERVOIR LIQUIDS TESTING LABORATORY ANALYTICAL DATA AND CHAINS-OF-CUSTODY (REVISED TEXT INCLUDED)

APPENDIX C: 1998 ANNUAL SOIL GAS MONITORING REPORT DATA

APPENDIX D: 1998 ANNUAL IN-BUSINESS AIR MONITORING REPORT DATA

APPENDIX A

TECHNICAL MEMORANDUM NO. 10 -
ADDITIONAL SOIL SAMPLING AND LEACHABILITY TESTING DATA
REVISED TEXT

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1.0 INTRODUCTION

1. This Report of Findings (ROF) has been prepared to summarize the activities conducted at the Waste Disposal, Inc (WDI) Superfund Site as outlined in Technical Memorandum (TM) No. 10 - Additional Soil Sampling and Leachability Testing. TM No. 10 was approved by the United States Environmental Protection Agency (EPA) on September 2, 1998. The purpose of this sampling activity was to determine the potential leachability of constituents of concern from the areas shown in Figure 1, for use in expanding the range of capping and excavation/disposal options for areas outside the reservoir as part of the Feasibility Study (FS) process.

2. The following activities were conducted according to the scope of work outlined in TM No. 10:
   - Collect and analyze fill and waste material samples from five locations onsite.
   - Analyze the samples by Toxicity Characteristics Leaching Procedure (TCLP) and Soluble Threshold Limit Concentration (STLC) methods.
   - Provide data to compare the characteristics of materials from inside and outside the reservoir.

2.0 SAMPLING PROCEDURES AND CHEMICAL ANALYSIS

2.1 DESCRIPTIONS AND PROCEDURES FOR SAMPLING AND ANALYSIS

1. Fill and waste material samples were collected from the areas shown in Figure 1, using procedures outlined in the Revised Supplemental Field Sampling and Analysis Plan (Rev. 2) and the Revised Supplemental Quality Assurance Project Plan (Rev. 2), submitted to Environmental Protection Agency (EPA) November 17, 1997 and approved December 2, 1997. Table 1 shows the location and depth interval for each sample collected.

2. Samples were obtained by hollow-stem auger drilling using a split spoon sampler with 2-inch x 6-inch brass tube liners. The following materials were sampled:
   - Fill material (approximately at 0 to 5 feet).
   - Waste material (sump-like material approximately at 5 to 20 feet).

   The brass tube liners were fitted with end caps, labeled and placed into prechilled coolers for delivery to the laboratory under Chain-of-Custody (COC) protocol.

3. Samples for total volatiles analysis (EPA Method 8260A and TCLP) were collected using an EMCOM sampler following EPA Method 5035. The samples were collected immediately on recovery of the brass sampling tube, sealed, placed into prechilled coolers and delivered to the laboratory under COC protocol. Upon receipt of the samples, the laboratory prepared the TCLP extract within the required holding time (24 hours).

4. The TCLP samples were extracted with acetic acid and with deionized (DI) water at the laboratory using EPA Method 1311 procedures. The extracts were then analyzed using the following EPA Methods:
   - EPA Method 8260 (Volatile Organics).
   - EPA Method 8270 (Semivolatile Organics).
   - EPA Method 8081 (Pesticides and PCBs).
   - EPA Method 6010A, 7060, 7421, 7470 and 7740 for metals.

5. In addition, the samples were extracted using California's CAM-WET test (CR 66699[A]) with DI water (48 hour period to simulate rain infiltration), and analyzed for metals using the EPA methods listed above.

3.0 SUMMARY OF ANALYTICAL RESULTS

3.1 TOTAL VOLATILE ORGANICS (VOCS)

1. Table 2 provides a summary of the total VOC analysis results. The majority of the constituents were nondetect with the exception of the following:
   - WDI-LS-1 (Waste): Naphthalene (23 mg/kg).
   - WDI-LS-2 (Fill): Naphthalene (0.006 mg/kg).
   - WDI-LS-2 (Waste): Naphthalene (0.12 mg/kg).
   - WDI-LS-3 (Waste): Ethylbenzene (11 mg/kg), Naphthalene (37 mg/kg), Xylene (64 mg/kg).
   - WDI-LS-4 (Waste): Benzene (4.2 mg/kg), Ethylbenzene (10 mg/kg), Naphthalene (18 mg/kg), Toluene (28 mg/kg), Xylene (74 mg/kg).
   - WDI-LS-5 (Fill): Naphthalene (1.0 mg/kg).
   - WDI-LS-5 (Waste): Ethylbenzene (2.1 mg/kg), Naphthalene (2.6 mg/kg), Xylene (7.8 mg/kg).

2. The results shown in Table 2 are consistent with the site data from previous investigations (i.e., December 1997 Geoprobe Sampling) which indicates a limited amount of VOCs in the fill and waste material.

3. Using the total VOC data and the TCLP dilution factor, (i.e., 20), the following conclusions can be made from the total VOC data:
   - Fill Samples (WDI-LS-1 through WDI-LS-5):
     - VOCs would be below TCLP and MCL limits.
   - Waste Samples (WDI-LS-1 and WDI-LS-2):
     - VOCs would be below TCLP limits.
   - Waste Samples (WDI-LS-3, WDI-LS-4 and WDI-LS-5):
     - VOCs would be below TCLP limits for all the constituents with the exception of vinyl chloride in sample WDI-LS-3. Sample WDI-LS-3 had a high detection limit (1 to 2 mg/kg) for vinyl chloride; however, the result does not necessarily mean that vinyl chloride is present.

3.2 TCLP ANALYSIS RESULTS

1. The results of the TCLP testing are provided in Table 3. A summary of the TCLP data is provided in Table 4.

2. Based on the TCLP results there were no samples which indicated detectable levels exceeding TCLP limits.

3. As shown in Table 4, several constituents had elevated TCLP detection and reporting limits. However, using the standard one half the detection limit for each compound, there would be no TCLP exceedances with the exception of vinyl chloride which had a detection limit of greater than twice the TCLP limit. Again, this result does not necessarily mean that vinyl chloride is present.

3.3 STLC ANALYSIS RESULTS

1. The California Wet Test, also known as the STLC Test, is generally considered to be more aggressive than the Federal TCLP Test. The STLC analysis focuses on metals, one VOC, trichloroethylene, and pesticides/PCBs. Table 5 provides a summary of the STLC data. As indicated in Table 5, one exceedance of the STLC for lead was observed, in Sample WDI-LS-5 (fill). The sample contained 5.07 mg/L lead compared to the STLC limit of 5.0 mg/L. This exceedance is not considered significant, since it is well within the expected accuracy of the method.

3.4 DEIONIZED WATER LEACH

1. To determine the potential for leaching of constituents due to rainwater infiltration, the samples were also extracted using DI water for 48 hours, in comparison to the standard 18-hour TCLP extraction procedure. Table 6 provides a summary of the DI water leaching results. The results of this test indicated the following:
   - The use of DI water significantly reduces the amount of leachable constituents.
   - No exceedances of the TCLP criteria were observed.

4.0 CONCLUSIONS

1. Based on the data generated, it appears that the fill and waste materials are not considered hazardous by Federal TCLP or State STLC criteria. The only exception to this conclusion is vinyl chloride which had a significantly high detection limit in this testing episode to determine the status of vinyl chloride. However, based on the other VOC levels, it is unlikely that vinyl chloride will exceed the TCLP limit. As discussed in Section 3.3, one minor STLC exceedance was observed for lead in Sample WDI-LS-5 (fill). This exceedance is not considered significant since the result is well within the expected range of accuracy for the method.

2. Due to some of the high detection limits observed during this test, a full evaluation of the potential leaching constituents above the maximum contaminant levels (MCLs) for drinking water could not be completed. The elevated detection limits were due to the presence of oily hydrocarbons and drilling muds from the sump-like materials.

3. A comparison of the results of the reservoir samples and the materials outside the reservoir showed only minimal differences in leachability characteristics.

4. Evaluation of the deionized leaching results confirmed that the potential for leaching under rain infiltration conditions is very low, and well below the TCLP acid extraction levels. This indicates that it is unlikely that significant leaching has occurred in the past, which is supported by quarterly ground water data collected at the site.

5. Based on the data presented in this ROF, the materials tested appear to be classified as nonhazardous for disposal purposes.

TABLE 1

SAMPLING LOCATION, MEDIA SAMPLED AND SAMPLING INTERVAL WASTE DISPOSAL, INC. SUPERFUND SITE

SAMPLE LOCATION	SAMPLE I.D.	MEDIA SAMPLED	SAMPLE INTERVAL (ft)
Area 7	WDI-LS-1(F)	Fill	3 to 4.5
	WDI-LS-1(W)	Waste	10 to 11.5
Area 4	WDI-LS-2(F)	Fill	3 to 4.5
	WDI-LS-2(W)	Waste	10 to 11.5
Area 5	WDI-LS-3(F)	Fill	3 to 4.5
	WDI-LS-3(W)	Waste	10 to 11.5
Area 2 (C&E)	WDI-LS-4(F)	Fill	2.5 to 4
	WDI-LS-4(W)	Waste	7 to 8.5
Area 2 (Reservoir)	WDI-LS-5(F)	Fill	3 to 4.5
	WDI-LS-5(W)	Waste	10 to 11.5

94-256/Rpts/ReDeInSuRe/App A (4/16/99/ey)

F = Fill material
W = Waste material

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TABLE 2

ANALYTICAL DATA FOR VOLATILE ORGANIC COMPOUNDS FROM SOILS TOTAL ANALYSIS WASTE DISPOSAL, INC. SUPERFUND SITE

CONSTITUENT	SAMPLE IDENTIFICATION AND ANALYTICAL RESULTS (EPA METHOD 8260)									
	WDI-LS-1		WDI-LS-2		WDI-LS-3		WDI-LS-4		WDI-LS-5	
	Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste
Benzene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	4.2	<0.76	<1.2
Carbon Tetrachloride	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
Chlorobenzene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
Chloroform	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
1,2-Dibromoethane	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
1,4-Dichlorobenzene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
1,2-Dichloroethane	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
1,1-Dichloroethylene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
Ethylbenzene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	11	<0.0087	10	<0.76	2.1
Methylene Chloride	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
Naphthalene	<0.0057	23	0.0061	0.12	<0.0049	37	<0.0087	18	1	2.6
Tetrachloroethylene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
Toluene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	28	0.8	<1.2
1,1,1-Trichloroethane	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
Trichloroethylene	<0.0057	<1.0	<0.0051	<0.0088	<0.0049	<4.5	<0.0087	<1.4	<0.76	<1.2
Vinyl Chloride	<0.011	<2.0	<0.01	<0.018	<0.0099	<8.6	<0.017	<2.6	<1.5	<2.3
Xylene	<0.0057	<1.0	0.025	<0.0088	<0.0049	64	<0.0087	74	<0.76	7.8

94-256/Rpts/ReDeInSuRe/App A (4/16/99/ey)

NA = Not Analyzed

Note: All concentrations are reported in ppm (mg/kg) unless otherwise noted.
Numbers in bold indicate a detected concentration.

TRC

TABLE 3

TCLP ANALYTICAL RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE

CHEMICAL	TCLP LIMIT (mg/L)	STLC (mg/L)	MCL (mg/L)	TTLC (mg/kg)	SAMPLE IDENTIFICATION ANALYTICAL RESULTS (EPA METHODS 8260, 8270, 8081, 6010A, 7060, 7421, 7470 AND 7740)									
					WDI-LS-1		WDI-LS-2		WDI-LS-3		WDI-LS-4		WDI-LS-5	
					Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste
Arsenic	5	5	0.05	500	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Barium	100	100	1,000	10,000	0.503	3.09	0.75	2.27	0.465	6.89	0.9	2.1	0.275	0.716
Beryllium	NE	0.75	0.004	75	0.006	0.009	0.008	0.006	0.006	0.009	0.007	0.009	0.013	7.2
Cadmium	1	1	0.005	100	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0181	<0.01	<0.01	<0.01
Chromium	5	5	0.05	500	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	5	5	0.015	1,000	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075
Mercury	0.2	0.2	0.002	20	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Selenium	1	1	0.05	100	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Silver	5	5	0.1	500	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Thallium	NE	7	0.002	70	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.5	NE	0.001	NE	<0.028	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
Carbon Tetrachloride	0.5	NE	0.0005	NE	<0.028	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
Chlordane	0.03	0.25	0.0001	2.5	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chlorobenzene	100	NE	0.07	NE	<0.028	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
Chloroform	6	NE	NE	NE	<0.028	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
1,4-Dichlorobenzene	7.5	NE	0.005	NE	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

TCLP = Toxicity Characteristics Leaching Procedure, 40 CFR, Part 26.
STLC = Soluble Threshold Limit Concentration, CCR Title 22.
MCL = Maximum Contaminant Level based on CCR Title 22 (MCLs will be used to assess ground water protectiveness based on TCLP and STLC results).
TTLC = Total Threshold Limit Concentration, CCR Title 22.
NE = None Established.

NA = Not Analyzed.
= Potential exceedance of TCLP levels due to elevated detection limits.

Note: All concentrations are reported in ppm (mg/L and mg/kg = ppm).
Numbers in bold indicate a detectable concentration.

(1) Results pending.

TABLE 3

TCLP LABORATORY DATA
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

CHEMICAL	TCLP LIMIT (mg/L)	STLC (mg/L)	MCL (mg/L)	TTLC (mg/kg)	SAMPLE IDENTIFICATION ANALYTICAL RESULTS (EPA METHODS 8260, 8270, 8081, 6010A, 7060, 7421, 7470 AND 7740)									
					WDI-LS-1		WDI-LS-2		WDI-LS-3		WDI-LS-4		WDI-LS-5	
					Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste
Ethylbenzene	NE	NE	0.7	NE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	NE	NE	1.0	NE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene	NE	NE	10	NE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	0.5	NE	0.0005	NE	<0.028	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
1,1-Dichloroethylene	0.7	NE	0.006	NE	<0.028	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
Heptachlor	0.008	0.47	0.00001	4.7	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Lindane	0.04	0.4	0.0002	4	<0.0004	<0.004	<0.0004	<0.004	<0.0004	<0.004	<0.0004	<0.004	<0.0004	<0.004
Pentachlorophenol	100	1.7	0.001	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Polychlorinated Biphenyls	NE	5	0.0005	50	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloroethylene	0.7	NE	0.005	NE	<0.028	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
Trichloroethylene	0.5	204	0.005	2,400	0.21	<1.0	<0.67	<0.94	<0.67	<0.94	<0.68	<1.2	<0.73	<0.92
Vinyl Chloride	0.2	NE	0.0005	NE	<0.055	<2.1	<1.3	<1.9	<1.3	<1.9	<1.4	<2.4	<1.5	<1.8

TCLP = Toxicity Characteristics Leaching Procedure, 40 CFR, Part 26.
STLC = Soluble Threshold Limit Concentration, CCR Title 22.
MCL = Maximum Contaminant Level based on CCR Title 22 (MCLs will be used to assess ground water protectiveness based on TCLP and STLC results).
TTLC = Total Threshold Limit Concentration, CCR Title 22.
NE = None Established.
NA = Not Analyzed.
= Potential exceedance of TCLP due to elevated detection limits.
Note: All concentrations are reported in ppm (mg/L) unless otherwise noted. Numbers in bold indicate a detectable concentration.

TABLE 4

SUMMARY OF TCLP AND STLC RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE

SAMPLE NO.	AREA	SAMPLE TYPE	TCLP EXTRACT RESULTS	STLC EXTRACT RESULTS
			Constituents Exceeding TCLP(1)	Constituents Exceeding STLC
WDI-LS-1	7	Fill	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None
WDI-LS-1	7	Waste	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) PCE(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None
WDI-LS-2	4	Fill	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None

(1) Laboratory reporting limit for this compound exceeds TCLP limits.
(2) Using a value of one half the detection limit, the compound would be less than the TCLP limit.
(3) Does not necessarily mean vinyl chloride is present, only that the detection limit is 1.0 to 1.9 mg/L.

TABLE 4

SUMMARY OF TCLP AND STLC RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

SAMPLE NO.	AREA	SAMPLE TYPE	TCLP EXTRACT RESULTS Constituents Exceeding TCLP(1)	STLC EXTRACT RESULTS Constituents Exceeding STLC
WDI-LS-2	4	Waste	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) PCE(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None
WDI-LS-3	5	Fill	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None
WDI-LS-3	5	Waste	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) PCE(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None

(1) Laboratory reporting limit for this compound exceeds TCLP limits.
(2) Using a value of one half the detection limit, the compound would be less than the TCLP limit.
(3) Does not necessarily mean vinyl chloride is present, only that the detection limit is 1.0 to 1.9 mg/L.

TABLE 4

SUMMARY OF TCLP AND STLC RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

SAMPLE NO.	AREA	SAMPLE TYPE	TCLP EXTRACT RESULTS Constituents Exceeding TCLP(1)	STLC EXTRACT RESULTS Constituents Exceeding STLC
WDI-LS-4	2	Fill	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None
WDI-LS-4	2	Waste	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals Lead(4) Pesticides/PCB's None
WDI-LS-5	R	Fill	VOC's Benzene(2) Carbon Tetrachloride(2) 1,2 Dichloroethane(2) 1,1 Dichloroethene(2) PCE(2) TCE(2) Vinyl Chloride(3) SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None

(1) Laboratory reporting limit for this compound exceeds TCLP limits.
(2) Using a value of one half the detection limit, the compound would be less than the TCLP limit.
(3) Does not necessarily mean vinyl chloride is present, only that the detection limit is 1.0 to 1.9 mg/L.
(4) A value of 5.07 mg/L, marginally exceeded the STLC limit of 5.0 mg/L.

TABLE 4

SUMMARY OF TCLP AND STLC RESULTS
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

SAMPLE NO.	AREA	SAMPLE TYPE	TCLP EXTRACT RESULTS	STLC EXTRACT RESULTS
			Constituents Exceeding TCLP[1]	Constituents Exceeding STLC
WDI-LS-5	R	Waste	VOC's Benzene[2] Carbon Tetrachloride[2] 1,2 Dichloroethane[2] 1,1 Dichloroethene[2] PCE[2] TCE[2] Vinyl Chloride[3] SVOC's Not Applicable Metals None Pesticides/PCB's None	VOC's None SVOC's Not Applicable Metals None Pesticides/PCB's None

(1) Laboratory reporting limit for this compound exceeds TCLP limits.
(2) Using a value of one half the detection limit, the compound would be less than the TCLP limit.
(3) A value of 5.07 mg/L, marginally exceeded the STLC limit of 5.0 mg/L.

TABLE 5

STLC LABORATORY DATA
WASTE DISPOSAL, INC. SUPERFUND SITE

CHEMICAL	TCLP LIMIT (mg/L)	STLC (mg/L)	MCL (mg/L)	TTLC (mg/kg)	EPA METHODS 8260, 8270, 8081, 6010A, 7060, 7421, 7470 AND 7740 RESULTS									
					WDI-LS-1		WDI-LS-2		WDI-LS-3		WDI-LS-4		WDI-LS-5	
					Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste
Antimony[1]	NE	15	0.006	500	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Arsenic	5	5	0.05	500	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barium	100	100	1,000	10,000	4.2	12.7	6.5	19.6	4.46	22	5.8	9.92	4.91	7.2
Beryllium	NE	0.75	0.004	75	0.00696	0.00918	0.00802	0.00627	0.0062	0.00911	0.00689	0.00964	0.013	0.00876
Cadmium	1	1	0.005	100	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.0911	<0.05	<0.05	<0.05
Chromium	5	5	0.05	500	0.163	0.198	0.333	0.201	0.507	0.199	0.11	0.241	0.119	0.461
Copper	NE	25	1	2,500	1.9	0.115	5.22	0.178	1.71	0.579	11.7	0.135	0.101	0.796
Lead	5	5	0.015	1,000	<0.375	0.64	2.64	1.69	1.04	0.529	2.52	4.94	5.07	4.06
Mercury	0.2	0.2	0.002	20	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Selenium	1	1	0.05	100	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	5	5	0.1	500	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
Thallium	NE	7	0.002	70	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	NE	250	5	5,000	1.49	1	7.89	7.3	6.1	20.6	10.3	12.1	4.64	8.22
Trichloroethane	0.5	204	0.0005	2,040										
Aldrin	NE	0.14	NE	1.4	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chlordane	0.03	0.25	0.002	2.5	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
DDT/DDD/DDE	NE	0.1	NE	1.0	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dieldrin	NE	0.8	NE	8.0	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Endrin	0.02	0.02	0.002	0.2	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Heptachlor	0.008	0.47	0.0004	4.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Methoxychlor	10.0	10.0	0.04	100	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCBs	NE	5.0	0.0005	50	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toxaphene	0.5	0.5	0.003	5.0	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

TCLP = Toxicity Characteristics Leaching Procedure, 40 CFR, Part 26
STLC = Soluble Threshold Limit Concentration, CCR Title 22
MCL = Maximum Contaminant Level based on CCR Title 22 (MCLs will be used to assess ground water protectiveness based on TCLP and STLC results)

TTLC = Total Threshold Limit concentration, CCR Title 22
NE = None Established
NA = Not Analyzed

Note: All concentrations are reported in ppm (mg/L and mg/kg = ppm). Concentrations in bold indicate a detectable value.

TRC

TABLE 6

DI WATER LEACHATE LABORATORY DATA
WASTE DISPOSAL, INC. SUPERFUND SITE

CHEMICAL	TCLP LIMIT (mg/L)	STLC (mg/L)	MCL (mg/L)	TTLC (mg/kg)	EPA METHODS 8260, 8270, 8081, 6010A, 7060, 7421, 7470 AND 7740 RESULTS									
					WDI-LS-1		WDI-LS-2		WDI-LS-3		WDI-LS-4		WDI-LS-5	
					Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste
Arsenic	5	5	0.05	500	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barium	100	100	1,000	10,000	<0.02	**0.169**	<0.02	**0.113**	**0.0372**	**0.0354**	**0.0279**	**0.0343**	**0.0322**	**0.0325**
Beryllium	NE	0.75	0.004	75	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium	1	1	0.005	100	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chromium	5	5	0.05	500	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead	5	5	0.015	1,000	<0.375	<0.375	<0.375	<0.375	<0.375	<0.375	<0.375	<0.375	<0.375	<0.375
Mercury	0.2	0.2	0.002	20	<0.002	<0.002	<0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Selenium	1	1	0.05	100	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Silver	5	5	0.1	500	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
Thallium	NE	7	0.002	70	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	NE	250	5	5,000	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	NE	0.14	NE	1.4	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Anthracene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzene	0.5	NE	0.001	NE	(1)	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	**0.13**	<0.025	<0.025
Benzo(a)pyrene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Tetrachloride	0.5	NE	0.0005	NE	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Chlordane	0.03	0.25	0.0001	2.5	<0.00015	<0.0003	<0.00015	<0.00015	<0.00015	<0.00015	<0.00015	<0.00015	<0.00015	<0.00015
Chlorobenzene	100	NE	0.07	NE	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Chloroform	6	NE	NE	NE	NA	<0.025	<0.025	**0.036**	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Chrysene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0:01
DDT	NE	0.1	NE	1	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

(1) Data not received.

TCLP = Toxicity Characteristics Leaching Procedure, 40 CFR, Part 26

STLC = Soluble Threshold Limit Concentration, CCR Title 22

MCL = Maximum Contaminant Level based on CCR Title22 (MCLs will be used to assess ground water protectiveness based on TCLP and STLC results).

TTLC = Total Threshold Limit concentration, CCR Title 22

NE = None Established

NA = Not Analyzed.

Note: All concentrations are reported in ppm (mg/L and mg/kg = ppm).

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TABLE 6

DI WATER LEACHATE LABORATORY DATA
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

CHEMICAL	TCLP LIMIT (mg/L)	STLC (mg/L)	MCL (mg/L)	TTLC (mg/kg)	EPA METHODS 8260, 8270, 8081, 6010A, 7060, 7421, 7470 AND 7740 RESULTS									
					WDI-LS-1		WDI-LS-2		WDI-LS-3		WDI-LS-4		WDI-LS-5	
					Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste	Fill	Waste
1,4-Dichlorobenzene	7.5	NE	0.005	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,2-Dichloroethane	0.5	NE	0.0005	NE	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
1,1-Dichloroethylene	0.7	NE	0.006	NE	NA	<0.025	<0.025	**0.063**	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Dieldrin	NE	0.08	NE	8	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Ethylbenzene	NE	NE	0.7	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor	0.008	0.47	0.00001	4.7	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Lindane	0.04	0.4	0.0002	4	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
2-Methylnaphthalene	NE	NE	NE	NE	<0.01	**0.0307**	<0.01	<0.01	<0.01	<0.01	<0.01	**0.0453**	<0.01	<0.01
Naphthalene	NE	NE	NE	NE	<0.01	**0.0145**	<0.01	<0.01	<0.01	<0.01	<0.01	**0.0784**	<0.01	<0.01
Pentachlorophenol	100	1.7	0.001	17	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Phenanthrene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Polychlorinated Biphenyls	NE	5	0.0005	50	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Pyrene	NE	NE	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tetrachloroethylene	0.7	NE	0.005	NE	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Toluene	NE	NE	0.15	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	NE	NE	0.2	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethylene	0.5	204	0.005	2,400	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Vinyl Chloride	0.2	NE	0.0005	NE	NA	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

TCLP = Toxicity Characteristics Leaching Procedure, 40 CFR, Part 26
STLC = Soluble Threshold Limit Concentration, CCR Title 22
MCL = Maximum Contaminant Level based on CCR Title 22 (MCLs will be used to assess ground water protectiveness based on TCLP and STLC results)
TTLC = Total Threshold Limit concentration, CCR Title 22
NE = None Established
NA = Not Analyzed
Note: All concentrations are reported in ppm (mg/L and mg/kg = ppm).

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APPENDIX B

TECHNICAL MEMORANDA NOS. 6, 8 AND 12 -
RESERVOIR LIQUIDS TESTING
REVISED TEXT

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1.0 INTRODUCTION

1. This Report of Findings (ROF) has been prepared to summarize the reservoir liquids investigations conducted at the Waste Disposal, Inc. (WDI) Superfund site as outlined in the following Technical Memoranda (TMs):

   - TM No. 6 - Reservoir Liquids Recovery Testing
   - Addendum - TM No. 6 - Additional Extraction Wells and Pump Tests
   - TM No. 8 - Additional Reservoir Liquids Extraction Well/ Probe Sampling.
   - TM No. 12 - Additional Reservoir Liquids Recovery Testing and Piezometer Abandonment.

2. An Interim ROF for TM Nos. 6 and 8 was prepared and submitted to Environmental Protection Agency (EPA) in July 1998. The Interim ROF described the activities conducted as outlined in the Scope of Work in TM Nos. 6 and 8. The following summarizes these activities:

   - Installation of liquid extraction wells and monitoring probes in the buried central reservoir of the WDI site.
   - Pump testing of the installed wells.
   - Liquids chemistry characterization.
   - Soil gas characterization.

3. The purpose of TM Nos. 6 and 8 activities was to assist in determining the hydraulic yield potential and chemical characterization of the liquid material (free and aqueous phase) within the buried reservoir at the WDI site. The specific objectives for each of these activities were as follows:

   - Estimate the hydraulic yield of the saturated portion of the reservoir and extraction well radius of influence.
   - Delineate chemical and physical characteristics of both free and aqueous phases of encountered reservoir liquids.
   - Characterize chemistry of soil gas from evacuated portion of saturated reservoir material, if possible.

4. The results of the initial TM No. 6 activities (completed during the December 1997 to June 1998 timeframe) indicated the liquids extracted during the pump test were being yielded by the overlying fill soils and not the underlying, relatively impermeable waste material. To help verify this hypothesis, additional TM No. 6 activities (completed during the August to September 1998 timeframe) were performed. The additional activities consisted of two pump tests, performed at designated areas selected by EPA and Waste Disposal, Inc.

Group (WDIG). These areas were chosen based upon data collected from several 1-inch piezometers installed by EPA during July 1998. The piezometers were located on a 50-foot by 50-foot grid within the reservoir boundary. Figure 1 shows the location of the piezometers.

5. Liquids recovery tests were also performed as outlined in TM No. 12, which was approved by EPA on October 2, 1998. The tests consisted of purging 62 1-inch piezometers installed by EPA, noted above, and monitoring the recovery rates of the liquids. The data collected during the TM No. 12 recovery testing was used for the following:
   - Characterize the recharge rates of the reservoir liquids
   - Determine the presence and recovery rates of liquids as well as free product.
   - Determine if liquid levels return to static/background levels.
   - TM No. 12 also describes the procedure used to abandon the piezometers.

6. The findings described in this ROF for the reservoir liquids investigations will be incorporated in the Remedial Design (RD) Investigative Activities Summaries Report.

7. The remainder of this ROF is presented in the following sections:
   - Section 2.0 - TM Nos. 6, 8 and 12 Activities Performed
   - Section 3.0 - Findings
   - Section 4.0 - Conclusions

2.0 TM NOs. 6, 8 AND 12 ACTIVITIES PERFORMED

1. This section summarizes the reservoir liquids investigations completed as outlined in TM Nos. 6, 8 and 12. This section also describes how these activities were implemented and discusses changes to the planned scope of work that occurred due to encountered field conditions and observations.

2.1 TM NO. 6 ACTIVITIES

1. The scope of work for TM No. 6 activities included the following list of tasks:
   - Installation of six extraction wells and 16 monitoring probes (see Figure 2).
   - Monitoring of baseline conditions of the liquids in the buried reservoir in the newly installed wells and probes.
   - Performance of a series of step and cycle-pump tests on the extraction wells.

- Monitoring of free and aqueous phase recovery rates.
- Sampling of free and aqueous phase liquids in the extraction wells and monitoring probes.
- Sampling of soil gas in Extraction Well WDI-EX-2 (EX-2).
- Liquids sampling at other wells located within the reservoir.

Table 1 summarizes the execution sequence of these tasks.

2. As the scoped tasks were executed, field conditions dictated that some of the specifics outlined in TM No. 6 be modified, with EPA concurrence. The following paragraphs discuss each of the activities in detail, including the scope modifications.

2.1.1 PUMP TESTING AT EX-1 AND EX-2

1. The installation of WDI-EX-1 (EX-1) and monitoring probes WDI-P-1, -2, -3 and -4 were completed on December 11 and 12, 1997. The wells and probes were constructed to the bottom of the reservoir, approximately 22 to 24 feet in depth, with screened intervals extending through the fill and waste materials. Figures 3 and 4 illustrate the subsurface encountered during the well and probe installations. Appendix A contains the boring and construction logs for the wells and probes.

2. The stratigraphy of the reservoir materials was found to be relatively consistent. A silty sand to sandy silt fill soil layer of approximately 9 to 10 feet thick occurs over an approximately 15-foot layer of black stained clays (drilling muds) comprising the waste material. Initial monitoring of liquid levels indicated that EX-1 was essentially dry, although the monitoring probes each contained liquids at a consistent elevation. Free product was detected at each monitoring probe with varying thicknesses. These findings were consistent in liquid level monitoring events conducted through March 1998. Table 2 summarizes the liquid level monitoring data prior to pumping. Following March 1998, TM No. 6 activities were temporarily suspended due to adverse weather conditions.

3. TM No. 6 activities resumed in May 1998. At that time, EX-1 continued to be essentially dry. Based on these conditions, an additional extraction well, EX-2, was installed on May 4, 1998, at the location shown on Figure 2. Construction of EX-2 was similar to EX-1. Liquids were measured in EX-2 at levels consistent with the monitoring probes.

4. Well EX-2 and the monitoring probes were measured for background liquid level monitoring on May 4 through 7, 1998 using electric sounding and logging equipment. Between

May 5 and 11, 1998, WDIG and EPA's Emergency Response Team (ERT) sampled EX-2 and the monitoring probes. The initial 0.5 gallon per minute (gpm) pump test was originally scheduled to begin on May 11, 1998; however, due to significant drawdown in EX-2 and the monitoring probes by the sampling events performed by WDIG and ERT, a joint decision was made by TRC and EPA to postpone the start of the pump test until the liquids had sufficient time to recover to static levels.

5. The 0.5 gpm pump test was reinitiated on May 21, 1998. EX-2 was dewatered to the pump inlet in three hours and nineteen minutes (see Figure 5 for liquid drawdown data). Approximately 93 gallons of liquids were purged from the extraction well. The procedure in TM No. 6 called for a series of step tests with increasing pump rates (i.e., 1,1.5, 2.0 and 4.0 gpm). Results from the 0.5 gpm indicated that this procedure could not be implemented because of the low yield from the reservoir material. Following consultation with EPA, a decision was made to reduce the pump rate to 0.25 gpm.

6. The 0.25 gpm test was initiated on June 2, 1998. EX-2 dewatered in approximately five hours and five minutes. Approximately 232 gallons of liquids were extracted during this test. At the completion of this time, and after a consultation with EPA, it was decided to complete a series of pump cycle tests over a 24-hour period to establish if a sustainable liquid extraction rate could be achieved. The pump cycle tests were conducted manually by switching on the pump at full capacity until the well was dewatered, then allowing recharge. At full capacity the pump dewatered the wells in approximately two to three minutes. The recharge into the well ranged from 6 to 8 feet (see Figure 6 for liquid drawdown data). The pump was cycled on at approximately two to four hour intervals.

7. The approximate radius of influence and liquid drawdown conditions from pumping EX-2 are shown in Figures 7 and 8.

8. Approximately 325 gallons were extracted from EX-2 during the pump tests. At the completion of WDIG's pump test activities, ERT performed tests at EX-2 and generated approximately 2,500 additional gallons of liquids. Purged liquids were discharged to a 6,000-gallon Baker™ tank. Although TM No. 6 called for the expeditious disposal of these liquids, it was decided, with EPA's concurrence, that the liquids will remain contained onsite until future pumping activities are completed. On September 23, 1998 a composite sample was collected for three tanks and profiled for disposal. EPA approved Chemical Waste Management (CWM) of Azusa for the disposal facility of the purged liquids on

October 8, 1998. On October 29, 1998, the liquids were hauled offsite to CWM by Consolidated Waste Industries (CWI). Appendix B contains the laboratory reports and Chain-of-Custody.

9. Free and aqueous phase liquids were sampled and analyzed from EX-2 and monitoring probes prior to the 0.5 gpm pump test. EX-2, P-1 and VW-09 were also sampled at the conclusion of the 0.25 gpm pump test since only these wells showed an influence during the test. Analytical results are summarized on Tables 3 and 4.

10. A soil gas sample was collected from EX-2 on June 11, 1998. Soil gas samples from the monitoring probes were not collected because little to no portion of the probe screened interval was exposed. The analytical results of the volatile organic compounds (VOCs) detected in the soil gas samples are summarized below:

• Vinyl Chloride:	34 ppm
• Methylene Chloride:	0.78 ppm
• trans-1, 2-Dichloroethene:	1.4 ppm
• cis-1, 2-Dichloroethane:	15 ppm
• 2-Butanane:	0.79 ppm
• Benzene:	11 ppm
• Trichloroethene:	8.5 ppm
• Toluene:	15 ppm
• 4-Methyl-2-Pentanone:	2.4 ppm
• Tetrachloroethene:	0.46 ppm
• Ethylbenzene:	1.4 ppm
• m,p-Xylenes:	6.2 ppm
• 0-Xylene:	1.7 ppm

Additional VOCs were nondetect, and therefore, are not listed. These results shown above are higher than previous vapor well monitoring results from within the reservoir area. This is due to the pumping activity which can increase the volatilization of organics from liquids during drawdown and recovery, where the liquids can volatilize to fill the pore space. The sample was not analyzed for methane due to an oversight by the laboratory. Appendix B contains the laboratory reports and Chain-of-Custody.

11. Additional wells within the reservoir boundaries were also sampled for liquid characterization. The locations of these other wells are shown on Figure 9. The results of the sample analyses are summarized in Table 3.

12. Microbial analysis of the extraction liquids indicates the presence of aerobic and anaerobic bacteria in the samples, as shown in Table 4. In general, the microbial levels were relatively low (i.e., less than 1,000,000 organics/L), with the exception of WDI-NDP-3 (EX-4 monitoring probe) which had 2,400,000 and 2,900,000, anaerobic and aerobic organics/L, respectively. It was anticipated that the anaerobic bacteria levels would likely be in the range of 10 to 100 million organisms per liter given the anaerobic nature of the liquids. The lower than expected anaerobic bacterial levels are consistent with the observed low methane generation rates.

13. Samples of the oily liquids from the pump testing were also analyzed to determine the British Thermal Units (BTU) and sulfur contents to evaluate the potential for these materials to be used as an alternative fuel material, or blended with a fuel source for use in an industrial type boiler or incineration. Oily materials with a BTU over 12,000 may have the potential for use in fuels or fuel blend. Sulfur contents greater than one percent generally reduce the feasibility of use as a fuel. As shown in Table 4, several of the well samples exceed the 12,000 BTU level and therefore could be considered for use in fuels. The sulfur contents of the samples all appear well below the 1 percent level, which could allow their use as a fuel if disposal is required. It must be considered that the oily portion of the liquids is only a small amount of the overall liquids in the reservoir, and therefore use as an alternate fuel may not be practical.

2.1.2 PUMP TESTING AT EX-4 AND EX-6

1. Although it was initially hypothesized that the reservoir liquids were being extracted from overlying fill materials, the wastes in the reservoir appear to not contain liquids in a predictable uniform strata throughout the waste or fill material. Instead, based on comparing the results at EX-1 and EX-2 with the results at EX-4 and EX-6, where only a small quantity of liquids could be extracted, it appears that the reservoir is behaving in a noncontinuum fashion, in which there appear to be higher permeability lenses filled with liquids with less interconnectability and more varying direction and range of "Zone of Influence" (i.e., individual "liquid containing lenses"). However, to attempt to verify the initial hypothesis, an addendum to TM No. 6, Addendum-TM No. 6 Additional Extraction Wells and Pump Tests, was implemented. This addendum was approved by EPA on August 5, 1998.

The scope of the additional field investigative activities included the following:

- Installation of four liquid extraction wells (EX-3, -4, -5 and -6) at locations in the reservoir determined in conjunction with EPA's reservoir boring investigation results (see Figures 1 and 2). The locations were selected based on field observations of the EPA borings and after consensus between EPA's and WDIG's representatives. The construction of the extraction wells (EX-3, -4, -5 and -6) and 12 associated monitoring probes were similar to existing extraction wells (EX-1 and -2) and piezometers (P-1 through -4).
- Pump cycle tests were performed in the new extraction wells, with associated monitoring in the adjacent well(s) and probes. The cycle tests were completed using similar procedures employed for the pump cycle test at EX-2.
- Liquid samples were collected from the new wells for chemical characterization, using the procedures and suite of analysis outlined in TM No. 6.

2. The installation of extraction wells EX-3 through –6 and monitoring probes (NSP-1, -2, -3; NDP-1, -2, -3; SSP-1, -2, -3; SDP-1, -2, -3) were completed on August 10, 11 and 12, 1998. Figure 2 shows the locations of the wells and probes. The deep probes located within the northern boundary of the reservoir (i.e., NDP probes) were constructed to the bottom of the reservoir, approximately 22 to 24 feet in depth, with screened intervals extending only through the waste material. The shallow probes (i.e., NSP probes) were constructed to the bottom of the fill material, approximately 9 to 10 feet, with screened intervals extending only through the fill material. The probes located within the southern or central test area of the reservoir (i.e., SAP and SSP probes) were constructed similar to the probes noted above. Figures 10 through 13 illustrate the subsurface encountered during the well and probe installations. Appendix A contains the boring and construction logs for the wells and probes.

3. The stratigraphy of the reservoir materials was consistent with previous TM No. 6 activities. A silty sand to sandy silt fill soil layer of approximately 9 to 10 feet thick occurs over an approximately 15-foot layer of black stained clays (drilling muds) comprising the waste material. Monitoring of liquid levels indicated that the shallow extraction wells (EX-3 and -5) were essentially dry, however the shallow monitoring probes contained liquids at similar elevations to the deep monitoring probes. Free product was detected in a few of the monitoring probes with varying thicknesses. Table 2 summarizes the liquid level monitoring data prior to pumping.

4. Free and aqueous phase liquids were sampled and analyzed from the extraction wells and monitoring probes prior to the pump tests. Analytical results are summarized on Tables 3A and 4 and discussed in Section 2.1.1.

5. The EX-4 pump test was initiated on August 19, 1998. The pump cycle tests were conducted by electrode sensors switching on the pump at full capacity until the well was dewatered, then allowing recharge. Refer to Figure 14 for the location of the sensors. EX-4 was dewatered to the pump inlet in approximately 10 minutes (see Figure 15). The extraction well recovered to the sensor after 4.5 days. A complete series of two pump cycle tests were performed over an 18 day period to establish if a sustainable liquid extraction rate could be achieved. Due to the slow recovery rate, only 2 cycles occurred over 18 days. A total of approximately 42 gallons of liquids were purged from EX-4 during this time.

6. The EX-6 pump test was initiated on September 15, 1998. The pump test was set up and was similar to the EX-4 pump test. EX-6 dewatered in approximately 10 minutes (see Figure 16). A complete series of ten pump cycle tests was performed over a 14 day period to establish if a sustainable liquid extraction rate could be achieved. A total of approximately 139 gallons of liquids were extracted during this test.

7. There did not appear to be a radius of influence during the pumping from EX-4 and -6 possibly due to a higher permeability lense bounded by a less permeable material (see Figures 10 through 13). Liquid levels monitored in the deep probes which are located 10, 20 and 40 feet from the extraction wells showed minor fluctuations in elevations which could be influenced by the barometric pressure. These observations of the deep monitoring probes are consistent with EX-2 pump test data. However, during the recovery phase of EX-4 pump test, a slight decrease in liquid level at NDP-2 was observed. This could have been influenced during EPA trenching activities which occurred during the same timeframe.

8. A total of approximately 180 gallons were extracted from EX-4 and -6 during the pump tests and stored in two separate Baker Tanks from EX-2 purged liquids. These liquids were sampled and handled similar to EX-2 purged liquids. Refer to Section 2.1.1 for a complete description.

2.2 TM NO. 12 ACTIVITIES

1. Liquid recovery testing of the piezometers was initiated on October 1, 1998. Prior to purging, liquid levels were monitored using a water/oil interface probe (see Table 5 for monitoring results). The liquid levels and the presence and thickness of free-product varied in the piezometers, similar to TM No. 6 extraction wells and monitoring probes. Purging activities were conducted by using a peristaltic pump and placing tygon tubing to the bottom of the piezometer. The piezometers were purged at a rate of approximately 0.15 gpm until the piezometer was dewatered or a minimum of one well volume (approximately one gallon) was purged. The liquid levels were monitored initially, one hour and 24 hours after purging.

2. Approximately 65 gallons of liquids were purged during the field activities. The purged liquids were discharged into two 55-gallon drums. Disposal of these liquids will be handled during TM No. 11 - Reservoir Grading and Waste/Debris Management activities.

3. At the completion of the recovery monitoring, the piezometers were abandoned by pulling the PVC out of the ground, cutting off the top 4 feet, pushing the PVC back into the ground and then pressure grouting the hole.

3.0 FINDINGS

3.1 TM NOS. 6 AND 8 ACTIVITIES

1. The liquid measurements for all of the extraction wells (EX-1 through EX-6) and the monitoring probes, demonstrates a tremendous variability of the liquid content and permeability characteristics of the solid materials encountered within the reservoir.

2. The presence and thickness of the floating free product also varied in all of the wells. EX-2 did not encounter free product initially; however, a small quantity of product was induced into the well following repeated pumping. EX-4 did not encounter free product during the duration of the pump test activities. Some of the monitoring probes had measurable layers of floating product, ranging from 0.52 inches to 7.27 feet. The free product thickness also varied over time within individual probes, with product thickness deltas in some individual probes as high as 4.77 feet. Table 2 shows the liquid levels and the thickness of free product during TM No. 6 activities.

3. The results of the pump tests showed that the reservoir liquids have a relatively low hydraulic yield. The short-term cycle pump tests yielded the following:

PUMP TEST LOCATION	APPROXIMATE AVERAGE YIELD (gpm)
EX-2	0.050
EX-4	0.001
EX-6	0.020

Table 6 summarizes the hydraulic yields of the material for the pump tests at EX-2, -4 and -6.

4. Analysis of the drawdown curves indicated the following:

EX-2:

- There is an apparent break in both the drawdown and recovery curves for the well, at the elevation of the contact between fill soil and waste material. Figures 5 and 6 indicate the slope breaks in the recovery curves; the drawdown curves slope breaks are masked by the horizontal scale needed to show all the test data. This break is probably caused by a higher permeability zone or by a boundary condition imposed because the waste material is not significantly contributing to the hydraulic yield of the well. This finding is not surprising given that the waste material observed during well installation was of a highly impervious nature (i.e., drilling muds).
- The drawdown curve from the 0.25 gpm pump test from monitoring probe VW-09, when subjected to a pump test analysis, indicated that the hydraulic conductivity of the fill soil is on the order of approximately 1×10^{-4} cm/sec., which is consistent for silty soils (see Figure 17).

EX-4:

- The drawdown curves for the pump test indicated that the liquids are possibly contained in a less permeable material or the area of the higher permeable material is significantly smaller than EX-2 the test area. A break in the EX-4 drawdown curve was also not observed in the data.

EX-6:

- The drawdown curves for the pump test indicated that the liquids are possibly contained in a less permeable material or the area of the higher permeable material is significantly smaller than the EX-2 test area. A break in the EX-6 drawdown curve was not observed in the data.

Appendix C contains the hydraulic conductivity calculations for EX-2 pump test.

5. Review of the drawdown data from the monitoring probes indicates that the radius of influence from well EX-2 ranges from less than 5 to approximately 20 feet. The following table summarizes the greatest drawdown maximum in each probe.

	Distance from EX-2	Direction from EX-2	Maximum Drawdown (ft)
P-1	5	North	0.85
VW-09	15	South	3.5
P-2	23	East	--
P-3	26	West	--
P-4	45	East	0.41

Although P-4 was observed to have an influence of drawdown at 45 feet away from EX-2, P-2 is located directly between the two wells (see Figure 2 for the location of the well extraction and probes). Discontinuity in the influence sphere is possibly the result of a higher permeability zone/lense. However, during ERT liquids investigations at EX-2, a drawdown in liquid levels was observed at P-2 and P-3.

6. Review of the drawdown data from the monitoring probes during EX-4 and EX-6 pump test did not appear to show an influence of drawdown directly related to pumping. However, there did appear to be minor fluctuations in elevations ranging from 0.1 feet to 0.3 feet. These fluctuations are part of the naturally occurring phenomena (i.e., possibly influenced by changes in barometric pressure) which have been observed throughout TM No. 6 activities.

7. The results of the chemical analyses of the encountered liquids generally did not indicate conditions that would not be expected given the history of deposition at the site. The analyses confirm that the waste material contains spent oil incorporated in drilling muds. Analysis of the reservoir liquids indicates they are not considered a hazardous waste. However, one well, P-3, showed high PCB levels when sampled by EPA. Subsequent samples were collected by WDIG and the PCB levels were within nonhazardous criteria. Tables 7 and 8 summarize the chemical characteristics of the liquids encountered.

8. Soil gas sampling of EX-2 indicated elevated levels of vinyl chloride, cis-1,2- dichloroethene, benzene, toluene and total xylenes at concentrations of 34, 15, 11, 15 and 7.9 ppm respectively. The gases may have volatized from liquids during pumping and therefore may not expected to be representative of the true soil gas conditions in the reservoir.

3.2 TM NO. 12 ACTIVITIES

1. Observations made during TM No. 12 activities also show the tremendous variability of the liquids and material characteristics encountered within the reservoir boundary. This is supported by the drawdown depths, recovery rates and levels recorded during field activities. Appendix D contains the field data collected during TM No. 12 activities.

2. Prior to purging, the presence and thickness of the floating free product varied in all the wells ranging from a sheen on the surface to approximately 5.25 feet thick.

3. Drawdown levels measured immediately after pumping activities have shown an influence ranging from no drawdown to purging the piezometer dry (see Table 5 for liquid levels).

4. Recovery of the liquids were monitored initially, one hour and 24 hours following purging activities. In some of the piezometers, liquid levels recovered back to and even greater than the original level (i.e., prior to purging). Most of the wells, however, did not recover back to within prepurge liquid levels (i.e., ± 0.20 feet).(1) The following is a summary of the results:

NO. OF PIEZOMETERS	FINAL LIQUID LEVEL CONDITION
4	> original level (prepurge)
28	< original level (prepurge)
30	= original level (prepurge)

Table 5 summarizes the liquid levels monitored during field activities.

4.0 CONCLUSIONS

1. In order to further investigate the reservoir liquids and materials characteristics, WDIG performed several pump test activities within the reservoir boundary. WDIG's findings indicate that there is a tremendous variability in the liquids and materials characteristics within the reservoir. This is also demonstrated by the data collected during EPA and WDIG trenching activities.(2)

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(1) Based on average liquid level fluctuations observed in wells during TM No. 6 activities.

(2) TRC, *Phase II - Reservoir Interior Test Trench Excavation Report of Findings*, October 1998.

2. Observations and analytical data collected during trenching and TM Nos. 6, 8 and 12 activities showed the following characteristics of the materials encountered within the reservoir:
   - Reservoir liquids consist of infiltrated rainwater and light crude oil.
   - Fill material consists of an extremely heterogeneous silty sand to sandy silt layer intermixed with wood and concrete debris.
   - Waste material consists of black stained clays (drilling muds) with zones of liquid and/or product.
   - Hydraulic characteristics of liquids within reservoir boundary are extremely heterogeneous. Areas of higher permeability lenses which contain liquids were observed in both the fill and sump material.
   - Chemical characteristics of liquids do not indicate the liquids are a hazardous material.

3. Observations made during trenching and additional TM No. 6 and 12 activities support the hypothesis that liquids within the fill and sump material are contained within higher permeability lenses. These lenses are not interconnected and locations are not well defined throughout the reservoir.

4. A total of 22 wells were installed by WDIG to demonstrate if the liquids in the reservoir could be effectively extracted by pumping activities. The data generated from these wells indicated the following:
   - Three of the six extraction wells were dry. This is possibly due to the undefined areas of higher permeable lenses.
   - Liquid levels appear to be related to the diameter of the wells (see Figure 18 for liquid level differences). The levels are influenced by: (1) low permeability of the fill and waste material; (2) limited volume of liquids; and (3) differences in void space determined by the diameter of the boring.
   - Low hydraulic yields of the material. Sustainable short-term yields ranged from 0.001 gpm to 0.050 gpm. The yields would be expected to decrease over time due to the limited zone of influence and volume of free-liquids contained in the higher permeability lenses.
   - Limited radius of influence ranging from less than 5 feet to approximately 20 feet during WDIG activities.

5. Assuming the minimum radius of influence was 5 feet, approximately 2,360 extraction wells would be required to attempt to dewater the reservoir. If the radius of influence was 20 feet, approximately 147 extraction wells would be required to attempt to dewater the reservoir. Regardless, due to the extreme heterogeneity of the materials and liquids in the reservoir it would be impractical to effectively dewater the reservoir using extraction technologies.

6. The purpose of performing the pumping activities was to demonstrate whether pumping was feasible to extract liquids from the reservoir. Based on the liquids investigations, pumping or trenching are not viable approaches to efficiently extract liquids from the reservoir. Aside from the mechanical impracticability of liquid extraction, chemical analyses of the liquids show that they are not hazardous. It is also important to note that ground water monitoring results do not indicate releases from the reservoir.

TABLE 5

LIQUIDS LEVELS IN EPA PIEZOMETERS
TM NO. 12 ACTIVITIES
WASTE DISPOSAL, INC. SUPERFUND SITE

WELL ID	DATE MONITORED	LIQUID LEVEL BEFORE PURGE		LIQUID LEVEL AFTER PURGE[1]		FINAL CHANGE IN LIQUID LEVEL		CHANGE IN WATER LEVEL	RECOVERY	INITIAL PRODUCT THICKNESS	FINAL PRODUCT THICKNESS
		PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft.)	WATER (ft.)	(feet)	(%)	(feet)	(feet)
A-4(S)	10/1/98	ND	4.98	ND	3.90			+1.08	121.7	ND	ND
	10/1/98			ND	3.58			+1.40	128.1		
	10/2/98			ND	3.55	ND	+1.43	+1.43	128.7		
A-4 (D)	10/1/98	5.18	15.10	ND	13.85			+1.25	108.3	9.92	0.23
	10/1/98			ND	7.82			+7.28	148.2		
	10/2/98			2.17	2.40	+3.01	+12.70	+12.70	184.1		
A-5	10/1/98	ND	5.30	ND	15.76			-10.46	NA	ND	ND
	10/1/98			ND	8.86			-3.56	32.8		
	10/2/98			ND	5.33	ND	-0.03	-0.03	99.4		
A-6	10/1/98	5.23	5.90	5.54	6.57			-0.67	NA	0.67	NA
	10/1/98			NM	5.32			+0.58	109.8		
	10/2/98			5.14	NM	+0.09	+0.58	NA	NA		
B-4	10/1/98	ND	4.42	ND	10.95			-6.53	NA	ND	ND
	10/1/98			ND	9.48			-5.06	13.4		
	10/2/98			4.94	ND	+4.94	-5.06	ND	NA		
B-5	10/1/98	4.10	4.85	4.7	NM			NA	NA	0.75	0.0
	10/2/98			ND	4.12	-4.10	+0.73	+0.73	115.1		
B-6	10/1/98	4.38	4.64	13.56	14.45			-9.81	NA	0.26	NA
	10/1/98			5.40	6.18			-1.54	66.8		
	10/2/98			3.96	NM	+0.42	-1.54	NA	NA		
B-7	10/1/98	3.87	4.18	7.80	8.02			-3.84	NA	0.31	NA
	10/1/98			NM	6.49			-2.31	44.7		
	10/2/98			4.45	NM	-0.58	-2.31	NA	NA		
B-8	10/1/98	ND	3.40	ND	14.01			-10.61	NA	ND	ND
	10/1/98			ND	13.15			-9.75	6.1		
	10/2/98			ND	9.16	ND	-5.76	-5.76	34.6		
C-3	10/2/98	4.09	4.12	ND	11.00			-6.88	NA	-0.03	ND
	10/2/98			ND	5.05			-0.93	77.4		
	10/5/98			ND	4.30	-4.09	-0.18	-0.18	95.6		
C-4	10/2/98	ND	4.60	ND	4.77			-0.17	NA	ND	ND
	10/2/98			ND	4.60			0.00	100.0		
	10/5/98			ND	4.60	ND	0.00	0.00	100.0		
C-5	10/5/98	ND	3.90	ND	6.62			-2.72	NA	ND	ND
	10/5/98			ND	4.57			-0.67	82.8		
	10/6/98			ND	4.24	ND	-0.34	-0.34	91.3		
C-8	10/1/98	ND	3.42	ND	4.80			-1.38	NA	ND	ND
	10/2/98			ND	3.75	ND	-0.33	-0.33	90.4		

(1)Initial Reading, 1-Hr Reading, 24-Hr Reading

Note: Some of the levels collected after the one-hour readings exceeded 24-hours. Refer to date monitored.

NA = Not applicable
ND = Not detected
NM = Not measured
ft bgs = feet below ground surface

S = Shallow
D = Deep
\+ = Greater than initial (prepurge) reading
\- = Less than initial (prepurge) reading

TRC

TABLE 5

LIQUIDS LEVELS IN EPA PIEZOMETERS
TM NO. 12 ACTIVITIES
WASTE DISPOSAL, INC. SUPERFUND SITE

(Continued)

WELL ID	DATE MONITORED	LIQUID LEVEL BEFORE PURGE		LIQUID LEVEL AFTER PURGE[1]		FINAL CHANGE IN LIQUID LEVEL		CHANGE IN WATER LEVEL	RECOVERY	INITIAL PRODUCT THICKNESS	FINAL PRODUCT THICKNESS
		PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft.)	WATER (ft.)	(feet)	(%)	(feet)	(feet)
C-9 (S)	10/1/98	ND	DRY	NM	NM	NM	NM	NA	NA	NA	NA
C-9 (D)	10/1/98	3.39	NM	NM	NM	NM	NM	NA	NA	NA	NA
D-3 (S)	10/2/98	ND	3.55	ND	5.47			-1.92	NA	ND	ND
	10/2/98			ND	4.94			-1.39	60.8		
	10/5/98			ND	3.60	ND	-0.05	-0.05	98.6		
D-3 (D)	10/2/98	3.45	3.51	ND	3.57			-0.06	NA	0.06	0.02
	10/2/98			ND	3.53			-0.02	99.4		
	10/5/98			3.58	3.60	-0.13	-0.09	-0.09	97.4		
D-4	10/2/98	4.15	4.25	ND	14.70			-10.45	NA	0.10	0.02
	10/2/98			ND	8.79			-4.54	40.2		
	10/5/98			4.13	4.15	+0.02	+0.10	+0.10	102.4		
D-5	10/2/98	5.02	5.07	ND	6.02			-0.95	NA	0.05	ND
	10/2/98			ND	5.10			-0.03	99.4		
	10/5/98			ND	5.12	-5.02	-0.05	-0.05	99.0		
D-6 (S)	10/2/98	ND	5.00	ND	5.35			-0.35	NA	ND	ND
	10/2/98			ND	5.09			-0.09	98.2		
	10/5/98			ND	4.90	ND	+0.10	+0.10	102.0		
D-6 (D)	10/2/98	4.67	5.58	NM	12.02			-6.44	NA	0.91	ND
	10/2/98			NM	5.98			-0.40	92.8		
	10/5/98			ND	4.98	-4.67	+0.60	+0.60	110.8		
D-7	10/1/98	3.15	4.40	NM	13.65			-9.25	NA	1.25	NA
	10/2/98			3.08	NM	+0.07	-9.25	NA	NA		
D-8	10/1/98	ND	4.12	ND	17.95			-13.83	NA	ND	ND
	10/2/98			ND	5.81	ND	-1.69	-1.69	59.0		
D-9	10/1/98	3.95	5.85	NM	NM			NA	NA	1.90	NA
	10/2/98			4.00	NM	-0.05	NM	NA	NA		
E-1	10/5/98	4.00	4.50	ND	17.00			-12.5	NA	0.50	ND
	10/5/98			ND	13.75			-9.25	19.1		
	10/6/98			ND	7.20	-4.00	-2.70	-2.7	40.0		
E-2	10/5/98	2.97	3.00	6.50	6.55			-3.55	NA	0.03	0.09
	10/5/98			NM	6.00			-3.00	8.4		
	10/6/98			4.80	4.89	-1.83	-1.89	-1.89	37.0		
E-3	10/2/98	ND	3.40	ND	17.14			-13.74	NA	ND	ND
	10/2/98			ND	13.20			-9.80	23.0		
	10/5/98			ND	3.80	ND	-0.40	-0.40	88.2		
E-4	10/2/98	2.91	3.08	ND	13.79			-10.71	NA	0.17	ND
	10/2/98			ND	5.10			-2.02	34.4		
	10/5/98			ND	3.08	-2.91	0.00	0.0	100.0		

(1) Initial Reading, 1-Hr Reading, 24-Hr Reading

Note: Some of the levels collected after the one-hour readings exceeded 24-hours. Refer to date monitored.

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TABLE 5

LIQUIDS LEVELS IN EPA PIEZOMETERS
TM NO. 12 ACTIVITIES
WASTE DISPOSAL, INC. SUPERFUND SITE
(Continued)

WELL ID	DATE MONITORED	LIQUID LEVEL BEFORE PURGE		LIQUID LEVEL AFTER PURGE[1]		FINAL CHANGE IN LIQUID LEVEL		CHANGE IN WATER LEVEL	RECOVERY	INITIAL PRODUCT THICKNESS	FINAL PRODUCT THICKNESS
		PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft.)	WATER (ft.)	(feet)	(%)	(feet)	(feet)
E-5	10/2/98	2.40	5.15	NM	6.10			-0.95	NA	2.75	2.22
	10/2/98			4.29	5.40			-0.25	95.1		
	10/5/98			2.96	5.18	-0.56	-0.03	-0.03	99.4		
E-6	10/2/98	3.05	4.19	18.10	18.17			-13.98	NA	1.14	0.15
	10/2/98			NM	6.26			-2.07	50.6		
	10/5/98			3.33	3.48	-0.28	+0.71	+0.71	116.9		
E-7	10/1/98	2.59	6.20	NM	NM			NA	NA	3.61	NA
	10/2/98			3.08	NM	-0.49	NM	NA	NA		
E-8	10/1/98	3.15	5.50	11.03	NM			NA	NA	2.35	NA
	10/2/98			4.21	NM	-1.06	NM	NA	NA		
E-9	10/1/98	3.86	8.15	NM	NM			NA	NA	4.29	NA
	10/2/98			3.90	NM	-0.04	NM	NA	NA		
F-1	10/5/98	3.05	4.55	NM	6.50			-1.95	NA	1.5	1.6
	10/5/98			3.90	5.50			-0.95	79.1		
	10/6/98			3.50	5.10	0.00	-0.55	-0.55	87.9		
F-2	10/5/98	3.35	10.92	NM	16.77			-5.85	NA	7.57	3.91
	10/5/98			7.00	12.90			-1.98	81.9		
	10/6/98			3.75	7.66	0.40	+3.26	+3.26	129.9		
F-3	10/5/98	4.00	4.22	NM	6.74			-2.52	NA	0.22	0.88
	10/5/98			NM	5.60			-1.38	67.3		
	10/6/98			4.00	4.88	0.00	-0.66	-0.66	84.4		
F-4	10/5/98	3.36	4.20	6.61	7.31			-3.11	NA	0.84	0.87
	10/5/98			3.90	5.63			-1.43	65.9		
	10/6/98			3.58	4.45	-0.22	-0.25	-0.25	94.0		
F-6	10/2/98	3.14	5.30	14.06	14.95			-9.65	NA	2.16	0.13
	10/2/98			NM	8.95			-3.65	31.1		
	10/5/98			5.00	5.13	-1.86	+0.17	+0.17	103.2		
F-7 (S)	10/2/98	ND	5.00	ND	DRY			NA	NA	NA	NA
	10/2/98			ND	5.70			-0.70	86.0		
	10/5/98			ND	5.65	ND	-0.65	-0.65	87.0		
F-7 (D)	10/2/98	1.80	10.12	3.80	NM			NA	NA	8.32	6.26
	10/2/98			5.30	9.70			+0.42	104.2		
	10/5/98			3.82	10.08	-2.02	+0.04	+0.04	100.4		
F-8	10/2/98	3.67	4.01	NM	8.46			-4.45	NA	0.34	0.20
	10/2/98			7.70	7.76			-3.75	6.5		
	10/5/98			4.10	4.30	-0.43	-0.29	-0.29	92.8		

(1) Initial Reading, 1-Hr Reading, 24-Hr Reading

Note: Some of the levels collected after the one-hour readings exceeded 24-hours. Refer to date monitored.

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TABLE 5

LIQUIDS LEVELS IN EPA PIEZOMETERS
TM NO. 12 ACTIVITIES
WASTE DISPOSAL, INC. SUPERFUND SITE

(Continued)

WELL ID	DATE MONITORED	LIQUID LEVEL BEFORE PURGE		LIQUID LEVEL AFTER PURGE[1]		FINAL CHANGE IN LIQUID LEVEL		CHANGE IN WATER LEVEL	RECOVERY	INITIAL PRODUCT THICKNESS	FINAL PRODUCT THICKNESS
		PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft.)	WATER (ft.)	(feet)	(%)	(feet)	(feet)
F-9	10/2/98	2.79	6.80	6.95	NM			NA	NA	4.01	2.04
	10/2/98			4.28	6.04			+0.76	111.8		
	10/5/98			2.85	4.89	-0.06	+1.91	+1.91	128.1		
G-1	10/5/98	3.00	9.45	NM	12.85			-3.40	NA	6.45	4.35
	10/5/98			4.15	12.35			-2.90	69.3		
	10/6/98			3.10	7.45	-0.10	+2.00	+2.00	121.3		
G-2	10/5/98	3.65	7.77	6.75	16.00			-8.23	NA	4.12	3.42
	10/5/98			4.29	6.56			+1.21	115.5		
	10/6/98			3.92	7.34	-0.27	+0.43	+0.43	105.5		
G-3	10/5/98	4.10	7.95	5.60	15.00			-7.05	NA	3.85	3.5
	10/5/98			4.36	5.85			+2.10	126.4		
	10/6/98			4.05	7.55	+0.05	+0.40	+0.40	105.0		
G-4	10/5/98	3.65	9.70	4.00	8.38			+1.32	113.6	6.05	4.72
	10/5/98			4.10	7.88			+1.82	118.8		
	10/6/98			3.78	8.50	-0.13	+1.20	+1.20	112.4		
G-5	10/5/98	4.60	7.00	7.12	17.30			-10.30	NA	2.40	0.85
	10/5/98			7.70	7.85			-0.85	87.9		
	10/6/98			5.00	5.85	-0.40	+1.15	+1.15	116.4		
G-6	10/2/98	3.10	13.56	5.98	10.75			+2.81	120.7	10.46	11.02
	10/2/98			3.30	14.88			-1.32	90.3		
	10/5/98			2.84	13.86	+0.26	-0.30	-0.30	97.8		
G-7	10/2/98	1.40	7.30	9.25	11.00			-3.70	NA	5.90	1.06
	10/2/98			4.65	4.74			+2.56	135.1		
	10/5/98			4.10	5.16	-2.70	+2.14	+2.14	129.3		
G-8	10/2/98	2.34	3.84	3.75	NM			NA	NA	1.50	0.05
	10/2/98			3.70	3.78			+0.06	135.1		
	10/5/98			3.70	3.75	-1.36	+0.09	+0.09	129.3		
G-9 (S)	10/2/98	ND	3.96	ND	2.35			+1.61	NA	ND	ND
	10/2/98			ND	3.18			+0.78	101.6		
	10/5/98			ND	3.17	ND	+0.79	+0.79	102.3		
G-9 (D)	10/2/98	ND	2.95	ND	3.20			-0.25	140.7	ND	ND
	10/2/98			ND	2.90			+0.05	119.7		
	10/5/98			ND	2.93	ND	+0.02	+0.02	119.9		
H-2	10/5/98	5.15	8.10	NM	11.10			-3.00	NA	2.95	1.52
	10/5/98			5.45	6.65			+1.45	117.9		
	10/6/98			5.26	6.78	-0.11	+1.32	+1.32	116.3		

(1) Initial Reading, 1-Hr Reading, 24-Hr Reading

Note: Some of the levels collected after the one-hour readings exceeded 24-hours. Refer to date monitored.

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TABLE 5

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TM NO. 12 ACTIVITIES
WASTE DISPOSAL, INC. SUPERFUND SITE

(Continued)

WELL ID	DATE MONITORED	LIQUID LEVEL BEFORE PURGE		LIQUID LEVEL AFTER PURGE[1]		FINAL CHANGE IN LIQUID LEVEL		CHANGE IN WATER LEVEL	RECOVERY	INITIAL PRODUCT THICKNESS	FINAL PRODUCT THICKNESS
		PRODUCT (ft bgs.)	WATER (ft. bgs)	PRODUCT (ft. bgs)	WATER (ft. bgs)	PRODUCT (ft.)	WATER (ft.)	(feet)	(%)	(feet)	(feet)
H-3 (S)	10/5/98	ND	5.15	ND	5.15			0.00	100.0	ND	ND
	10/5/98			ND	5.25			-0.10	98.1		
	10/6/98			ND	5.26	ND	-0.11	-0.11	97.9		
H-3 (D)	10/5/98	5.06	5.07	5.06	5.07			0.00	100.0	0.01	0.10
	10/5/98			5.10	5.15			-0.08	98.4		
	10/6/98			5.10	5.20	-0.04	-0.13	-0.13	97.4		
H-4	10/5/98	3.40	9.87	13.00	17.36			-7.49	NA	6.47	5.2
	10/5/98			6.13	9.20			+0.67	106.8		
	10/6/98			4.00	9.20	-0.60	+0.67	+0.67	106.8		
H-5	10/5/98	4.60	5.65	6.90	10.12			-4.47	NA	1.05	1.11
	10/5/98			4.65	4.70			+0.95	116.8		
	10/6/98			4.47	5.58	+0.13	+0.07	+0.07	101.2		
H-6	10/2/98	4.19	5.00	NM	12.30			-7.30	NA	0.81	0.08
	10/2/98			6.30	6.40			-1.40	72.0		
	10/5/98			4.32	4.40	-0.13	+0.60	+0.60	112.0		
H-7	10/2/98	4.92	5.55	NM	10.50			-4.95	NA	0.63	0.15
	10/2/98			4.98	8.50			-2.95	46.8		
	10/5/98			5.00	5.15	-0.08	+0.40	+0.40	107.2		
H-8	10/2/98	ND	4.65	ND	14.10			-9.45	NA	ND	ND
	10/2/98			ND	4.68			-0.03	99.4		
	10/5/98			ND	4.65	ND	0.00	0.00	100.00		
I-4	10/5/98	5.05	6.52	NM	6.70			-0.18	NA	1.47	1.43
	10/5/98			5.15	6.35			+0.17	102.6		
	10/6/98			5.17	6.60	-0.08	-0.08	-0.08	98.8		
I-5	10/5/98	3.05	4.80	NM	7.45			-2.65	NA	1.75	3.00
	10/5/98			3.60	7.00			-2.20	54.2		
	10/6/98			3.00	6.00	+0.05	-1.20	-1.20	75.0		
I-6	10/2/98	3.65	4.25	NM	3.70			+0.55	112.9	0.60	0.21
	10/2/98			3.69	3.76			+0.49	111.5		
	10/5/98			3.74	3.95	-0.09	+0.30	+0.30	107.1		
I-7	10/2/98	ND	4.12	ND	4.20			-0.08	NA	ND	ND
	10/2/98			ND	4.10			+0.02	100.5		
	10/5/98			ND	4.15	ND	-0.03	-0.03	99.3		

(1) Initial Reading, 1-Hr Reading, 24-Hr Reading

Note: Some of the levels collected after the one-hour readings exceeded 24-hours. Refer to date monitored.

NA = Not applicable
ND = Not detected
NM = Not measured
ft bgs = feet below ground surface

S = Shallow
D = Deep
\+ = Greater than initial (prepurge) reading
\- = Less than initial (prepurge) reading

TRC

APPENDIX E: TECHNICAL MEMORANDUM NO. 9A - SOIL VAPOR EXTRACTION TREATABILITY STUDY DATA

APPENDIX F: 1998 ANNUAL GROUND WATER MONITORING REPORT DATA

APPENDIX G: 1998 STORMWATER POLLUTION PREVENTION PLAN DATA

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